

FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

No. 348. (No. 35, Vol. VII.)

AUGUST 27, 1915.

[Registered at the G.P.O.]

[Weekly, Price 3d.
Post Free, 8½d.]

Flight.

Editorial Office: 44, ST. MARTIN'S LANE, LONDON, W.C.

Telegrams: Truditor, Westrand, London. Telephone: Gerrard 1828.

Annual Subscription Rates, Post Free.

United Kingdom ... 15s. 6d. Abroad ... 20s. 6d.

CONTENTS.

	PAGE
Editorial Comment:	
The Expansion of the Industry	623
An Observer's Badges	624
The Two New Royal Flying Corps V.Cs.	626
Aircraft Work at the Front. Official Information	627
The Roll of Honour	627
The British Air Services	628
The Sperry Drift Indicator	629
Royal Aero Club. Official Notices	630
From the British Flying Grounds	631
Flying at Hendon	633
Eddies. By "Æolus"	635
Some American Aero Engines—The Ashmussen	637
Over the Lines in a Battle-plane	638
Aircraft and the War	640
Models	641
Correspondence	642

EDITORIAL COMMENT.

The Expansion of the Industry.

Almost immediately after the war broke out it was quickly realised by a very wide circle of the thinking people of these islands that Aviation had entered upon its upward path to become once and for all an established industry. That circle has ever since been extending, until now, as we have several times pointed out, the exception is to find a single person who has not come to the fixed conclusion that the one outstanding result of the war operations in science and practical progress is the position which aviation has attained. The future of the industry is undoubtedly now firmly assured, and its commercial expansion is more and more a certainty in the days to come when the civilised world has once again settled down into a more or less normal state, as may be possible, following such an upheaval of the world's affairs as is at present being witnessed. Probably it has within the last few months come home personally to many thousands of our workers, who, through the requirements of our Flying Services, have been drawn into the ever-broadening development of the industry. This direct influence upon both men and various trades has largely come about through the linking up of a number of manufacturing firms, who had up to recently been entirely unconcerned with Aviation's future, with the construction of aeroplanes for the Government. Special plant for the making of machines and parts of machines has been laid down in factories where, before the war, few in control of such works barely understood the difference between a box kite and a monoplane. Skilled mechanics and woodworkers have quickly adapted their capabilities to

the new requirements of the aviation industry, resulting in the realisation that a personal interest has dawned in this direction which may govern the whole of their future lives. Again, it is quite a revelation to most people to learn how many great sections of the industrial world are already most intimately affected by the growing demands of aircraft, and what infinite possibilities there are in practically every direction of trading, for joining up for the purpose of supplying one of the many detail necessities which go to make the aeroplanes and airships vehicles of such reliability as to encourage their extended use for both sport and various commercial enterprises, leaving out of consideration the vast and almost limitless demand for defensive and offensive craft which must necessarily spread to every nation on the globe and grow ever greater as the years roll by. In many quarters shrewd interest is being taken in providing for the filling of the wants of constructors, and it requires but a little analysis of the directions in which forethought may bring great rewards in the next decade, to suggest to many more some particular direction in which *their* individual interests may be profitably brought into operation. Take, by way of example, wood. Here there is at once an enormously wide field opened out. Timber growers and timber merchants are more immediately concerned in direct dealing, either on behalf of home-grown products or our friends from overseas. The wood supply business has already settled down into a big affair, and year by year it will tend to become a specialised side of the trade to supply the exacting requirements of aircraft firms. Nothing, perhaps, is more vital to the ensuring of reliable aeroplanes than this supply of suitable timber, and all aeroplane firms have their own experts for selecting the right kind of wood, and ensuring that each plank is sound. No doubt the time must come when the right kind of wood will get scarce, and it is, therefore, up to the merchant and the grower to look well ahead, so that a famine in aircraft timber may not eventuate. At present, at least, all-metal machines are not in sight; certainly they are not imminent, and it is with wood that the constructors will be most concerned for many years to come. To this end experiments should be made with new kinds of timbers, which might serve as substitutes for such sorts, the supply of which might quite conceivably become exhausted. With the supply of wood for the framework and propellers, the association of wood workers and wood working machines comes naturally into the category of men and matter likely to be affected by the expansion of the industry.

As metal enters largely into the component parts of

aircraft, here again both home and oversea interests are affected. After the winning and the shipment of the ore the foundries and the iron and steel works come into touch, whilst the offshoots from these main heads interested are legion. There are steel cables and wires to be provided, steel clip work, various bolts, nuts and wire-strainers, sheet metal work for engine cowls, petrol and oil tanks, steel tubing, ordinary and special (streamline) sections, stampings, forgings, chains, sprockets, gear wheels and so on, *ad infinitum*. It is only a question where to stop in the enumeration. When it comes to aerial engines, what a vision opens out for the engineering works of this country. Not only is it the engine itself, with all its attendant scope for employment, but in its wake are such highly important and necessary side accessories, which bring in again an enormous variety of workers, every one of whom will thereby be interested in the welfare of the aviation industry. To mention but a few is necessary to point the openings in this connection. They embrace carburettors, magnetos, sparking plugs, accumulators, self-starting instalments, wheels, tyres, shock absorbers (both rubber and steel springs), ball bearings, instruments of many kinds, such as revolution counters, air-speed indicators, altimeters, compasses, wireless outfits, cameras, &c., &c., &c. In the consumption of both petrol and oil the influence which air-work is likely to have upon these products is considerable, and opens out the suggestion for the establishment of special depôts for their supply under circumstances which so far have hardly been appreciated. Dopes, varnishes, paints, glues and fabrics for the planes are amongst other necessities, which have such far-reaching ramifications in their handling that it becomes more and more difficult to see where one can call a halt as to the interests of the community which are being affected directly or indirectly through the advent of the aviation industry. Then, as other important "accessories," there are the aerodromes with all their widespread possibilities, the hangars and attendant repair shops with all their necessary "impedimenta," not forgetting machine tools. And there are going to be aerodromes and hangars by the thousand presently when air-itinerary maps of the future will be as common as ordinary road maps are for land perambulators. More than enough has been set out above to justify the very serious consideration of those who have control of vast commercial interests in this country, to take hold in good time of the supply of the needs of this new industry so that the benefits may remain in British hands as far as possible. Many may think it to be early days to bother about the matter. But they are mistaken. It will repay tenfold those who come in now. The industry is here and is established securely, and there will be no looking back. It can only go one way, and that is forward. But no one can tell *how* big it will grow, its possibilities are so stupendous. It will be a case again of the motor car. This affords a striking lesson to ponder over. Under twenty years ago motor cars and their owners were laughed and jeered at. How many then could have imagined—including the jeered at ones—that 1915 would see one firm alone turning out 1,000 cars *per day*, with other firms arranging to follow that example. Yet this is a fact. Coachbuilders in those early days were asked to build bodies of particular types to the ideas of fitness of the motor manufacturers, but in most cases the designs were altogether too revolutionary, and but scant respect was given to the constructor's wishes. All sorts of obstacles were raised to the carrying out of these designs, until the motor engineers by sheer necessity were one after another forced, against their own wishes, to take up the body building side of automobiles, and it came about thereby that those coachbuilders

who had refused to come into line with motor progress, and would have nothing to do with such contraptions, one after another were put out of business, and outside a few enterprising and live firms, the body building for cars has become a very substantial side of the leading motor factories. And all this simply because those behind the old concerns *would* not see any good in mechanical road vehicles. It is to be hoped a clearer vision of the future of the aviation industries will materialise both with capitalists and those allied industries which are in a position to satisfy the needs of constructors by a little up-to-date forethought and adaptation, before it is too late. It is to the enterprising business man who acts now that the plums of the business will fall, and that there is ample scope for reaping a fruitful harvest is sufficiently, we think, indicated in the above review of the expansion of the industry.

An Observer's Badges.

About a month ago a feeling that had existed for some little time was put into concrete form by Mr. Joynson-Hicks during a speech in Parliament upon the shortcomings of our flying Services administration. It was to the effect that some official acknowledgment by means of a distinctive badge should be granted to observers who accompanied pilots in the air. At the time we applauded the suggestion, and said that without doubt when considered in the proper quarter it would bear fruit. In many ways aviation in the Army has been responsible for the breaking down of a good deal of red-tapeism, and another instance of this breaking away may be found in the issue of an Army order on August 24th—just one month and one day after our comments referred to above—to the effect that a badge, consisting of the letter "O" and an outspread wing, has been approved for wear by officers who are on the list of qualified observers of the Royal Flying Corps. The badge will be worn on the left breast, above medal ribands, in the same manner as the flying badge is worn by qualified pilots.

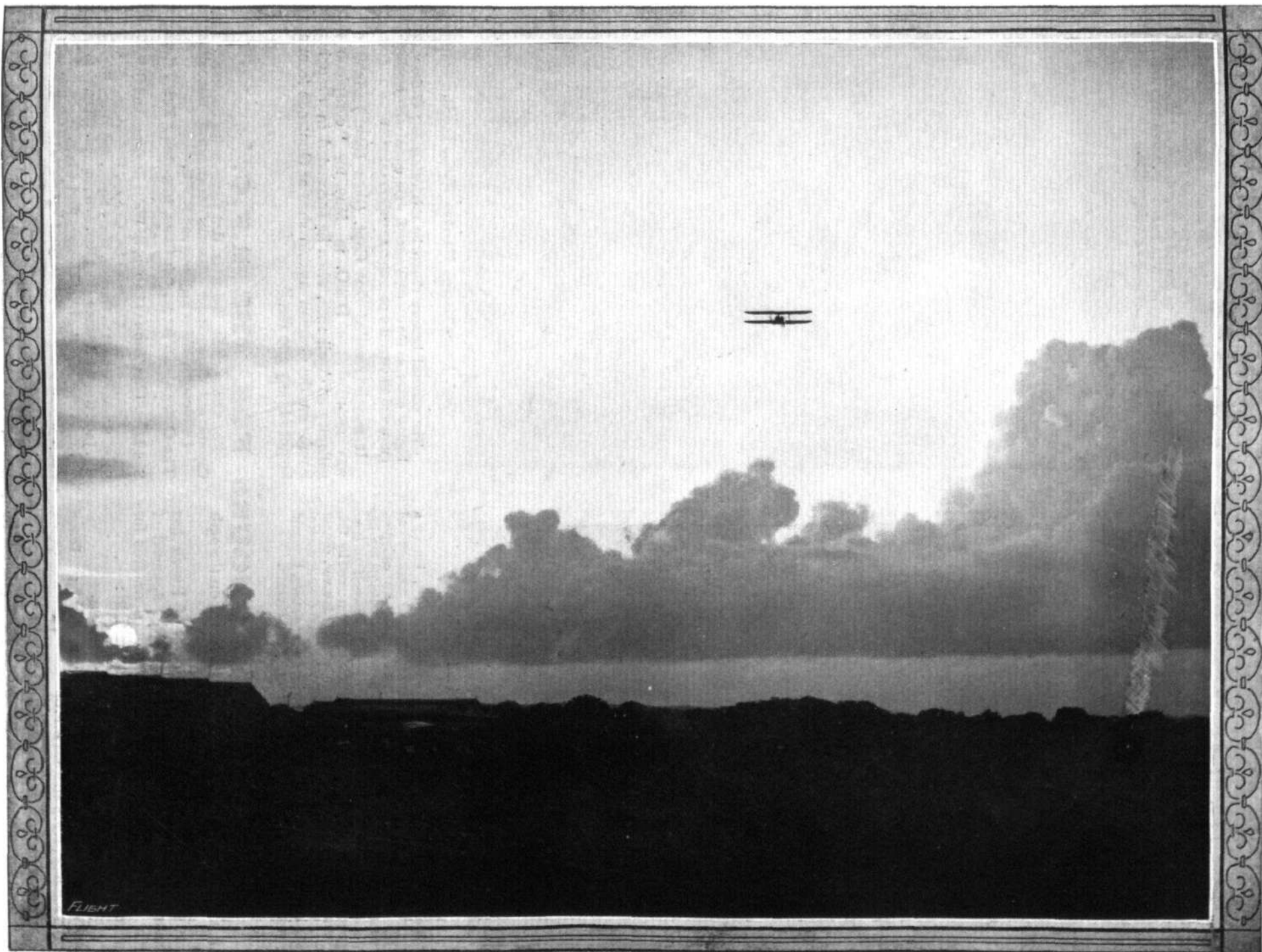
It is a well-deserved distinction, and one that will be appreciated by those entitled to wear the emblem and by the people who are glad to be able to recognise those who are doing especially useful and valuable work for their King, their brothers-in-arms, and their Country. In regard to badges generally for civilians, in the past we have had a good deal to say about the granting of these. As we have since pointed out, their ridiculous multiplication has placed the whole movement on the level of a farce, and therefore we welcome the recent notifications in regard to the abuse of both badges and the wearing of bogus uniforms. It would be better now we think for some official action to be taken whereby the wearing wrongfully of war service badges could be very severely dealt with. Our suggestion as to the issuing of khaki armlets under proper conditions is one which has received a considerable amount of support, and we think that these could be made to fill the bill in a very large measure. Dealing with the same subject on Wednesday last, the *Daily Mail* takes the same view as expressed by us long ago, and concludes its leaderette as follows:—

"The simplest way is to issue officially stamped armlets for the different categories of those who are entitled to wear them, and to punish heavily any bogus wearer or anyone carrying a plausible imitation."

We shall hope that this is yet another of the suggestions put forward by "FLIGHT" which will in good time be officially accepted, like several which have already been adopted almost in their entirety.

AUGUST 27, 1915.

FLIGHT



LATE EVENING AT HENDON. A SUNSET AND CLOUD STUDY.—Mr. C. B. Prodder on a Beatty-Wright machine.

"Flight" Copyright.

THE TWO NEW ROYAL FLYING CORPS V.Cs.

It has been announced that His Majesty the King has been graciously pleased to award the Victoria Cross to the undermentioned officers in recognition of their most conspicuous bravery and devotion to duty in the field:—

Captain JOHN AIDAN LIDDELL, 3rd Batt. Princess Louise's (Argyll and Sutherland Highlanders) and Royal Flying Corps.
— For most conspicuous bravery and devotion to duty on 31st July, 1915.—When on a flying reconnaissance over Ostend-Bruges-Ghent he was severely wounded (his right thigh being

Captain LANOE GEORGE HAWKER, D.S.O., Royal Engineers and Royal Flying Corps.

For most conspicuous bravery and very great ability on July 25th, 1915. When flying alone he attacked three German aeroplanes in succession. The first managed eventually to escape, the second was driven to ground damaged, and the third, which he attacked at a height of about 10,000 feet, was driven to earth in our lines, the pilot and observer being killed.



Capt. John Aidan Liddell, U.C.

broken), which caused momentary unconsciousness, but by a great effort he recovered partial control after his machine had dropped nearly 3,000 feet, and notwithstanding his collapsed state succeeded, although continually fired at, in completing his course, and brought the aeroplane into our lines—half an hour after he had been wounded. The difficulties experienced by this officer in saving his machine, and the life of his observer, cannot be readily expressed, but as the control wheel and throttle control were smashed, and also one of the under-carriage struts, it would seem incredible that he could have accomplished his task.



Capt. Lanoe George Hawker, U.C., D.S.O.

The personal bravery shown by this officer was of the very highest order, as the enemy's aircraft were armed with machine-guns, and all carried a passenger as well as the pilot.

It may be recalled that Capt. (then Lieut.) Hawker was awarded the D.S.O. in May for "conspicuous gallantry on April 19th, when he succeeded in dropping bombs on the German airship shed at Gontrode from a height of only 200 feet."

RUSSIAN HONOURS FOR THE R.F.C.

In a supplement to the *London Gazette* issued on the 25th inst., it was stated that:—

"His Imperial Majesty the Emperor of Russia has been graciously pleased to confer, with the approval of His Majesty the King, the under-mentioned rewards for gallantry and distinguished service in the field:—

The Order of St. George, 4th Class.

Sec. Lieut. WILLIAM HENRY DYKE ACLAND, Royal 1st Devon Yeomanry (T.F.), attached R.F.C.

The Order of St. Anne, 3rd Class, with Swords.

Major and Brevet-Col. HUGH MONTAGUE TRENCHARD, C.B., D.S.O., A.D.C., Royal Scots Fusiliers and R.F.C.

Major (temporary Lieut.-Col.) TOM INCE WEBB-BOWEN, Bedfordshire Regiment and R.F.C.

The Order of St. Stanislas, 3rd Class, with Swords.

Captain and Brevet-Major CHARLES ALEXANDER HOLCOMBE LONGCROFT, Welsh Regiment and R.F.C.

The Order of St. Anne, 4th Class, inscribed "For Valour in War."

Sec. Lieut. IVOR THOMAS LLOYD, S. Wales Borderers and R.F.C.

Cross of the Order of St. George, 3rd Class.

Sergt. SIDNEY CHARLES GRIGGS, No. 5 Sqdn., 2nd Wing, R.F.C.

Cpl. JACK NORTH ROGERS, No. 1 Res. A. Sqdn., Ad. Wing, R.F.C.

Medal of St. George, 2nd Class.

Sergt. EDWIN CECIL RUMFORD, No. 2 Squadron, 1st Wing, R.F.C.

Medal of St. George, 3rd Class.

1st Class Air-Mechanic THOMAS HENRY SUTCLIFFE, No. 5 Squadron, No. 2 Wing, R.F.C.

There are no restrictions as to the occasions on which these decorations may be worn. No individual applications for permission to wear them need therefore be submitted."

AIRCRAFT WORK AT THE FRONT.

OFFICIAL INFORMATION.

In the *communiqué* issued in Paris on Monday afternoon it was stated :—

"During August 22nd our aeroplanes bombarded the railway stations of Lens, Henin, Lietard, and Loos, and the railway from Lille to Douai."

In the *communiqué* issued in Paris on Tuesday it was stated :—

"A squadron of seven aeroplanes bombarded on Monday night the stations of Tergnier (Aisne) and Noyon (Oise). The aeroplanes dropped over 80 projectiles. Several fires were seen to break out in the station of Tergnier. All the machines returned."

In a note issued in Paris on August 25th regarding the operations in the Dardanelles there was the following :—

"On August 20th our air squadron successfully bombarded the landing place at Acba Shiliman, on the European coast to the north of Nagara, in spite of a violent fire from a number of the enemy's batteries."

"One of our aeroplanes sank a big Turkish transport at her moorings."

The following Belgian official note was issued on August 23rd :—

"During the night from the 22nd to the 23rd inst., our aviators continued the successful bombardment of the German establishments at Praetbosch and in the Houthulst Forest. From 11 to 20 tons of explosive and incendiary projectiles were dropped upon the German camps."

In the *communiqué* issued in Petrograd on Sunday there was the following :—

"Regarding Novo Georgievsk, on the 20th there was no direct news. That furnished by our aviators indicates that the position was extremely precarious, and that it was impossible to count upon further resistance."

The following appeared in the *communiqué* issued in Rome on the 19th inst. :—

"The enemy displays increasing activity in the use of aeroplanes for reconnoitring and offensive purposes. Our aviators, who, by their continual daring exploits, have contributed so greatly to the successful progress of our operations, constitute, in conjunction with our

anti-aircraft artillery, an effective defence against the enemy's efforts."

In the *communiqué* issued on Saturday there was the following :—

"In the early morning of the 20th an aeroplane squadron raided the enemy's aviation camp at Raunizza to the east of Gorizia, firing upon it for thirty consecutive minutes, with splendid results. Notwithstanding the fire from the enemy's anti-aircraft batteries, our aeroplanes returned absolutely undamaged. A 'Drachen' being sighted during the return journey, it was successfully brought down to the ground by the fire from our aeroplanes' Maxims, while operations from our intrepid and fortunate aircraft were continued against military objectives in perfect and correct conformity to all laws and usages of war."

"A punitive raid was carried out by the enemy's aircraft during the afternoon of the same day over the town of Udine, where fourteen bombs fell, resulting in the death of five civilians (including a woman and a little girl) and three carabineers. Some damage has also been reported to private buildings."

In the *communiqué* issued on Sunday, it was stated :—

"Yesterday morning we repeated our raid on the enemy aerodrome at Aisovitz, on which we dropped sixty bombs, causing havoc."

Our daring flight squadron, although heavily fired on by anti-aircraft guns, returned in safety."

In the *communiqué* issued in Rome on Tuesday it was stated :—

"On Sunday morning an enemy aeroplane flew over Sehio and dropped some bombs, killing a woman."

In the German *communiqué* of the 23rd it was stated :—

"At Wavrin, south-west of Lille, an English flying machine was shot down."

In the *communiqué* issued on Tuesday there was the following :—

"Near Loo, south-west of Dixmude, the day before yesterday, a French biplane was shot down by one of our army aviators."

In the Austrian *communiqué* of the 21st it was stated :—

"One of our air squadrons dropped bombs and fire-arrows on Udine. All our aeroplanes returned safely."

The Roll of Honour.

THE Secretary of the Admiralty has announced the following casualties :—

Under date August 24th :

Killed.

Flight Sub-Lieutenant John MacLarty, R.N.

Undated. Reported from France :

Wounded.

Bombardier William Harris, R.M.A., Anti-Aircraft Brigade.

The following casualties in the Expeditionary Force have been reported from General Headquarters to the War Office :—

Under date August 17th :

Missing.

Second Lieutenant D. D. Drury, Royal Flying Corps.

Second Lieutenant W. A. Maclean, Black Watch (1st Batt.), attached R.F.C.

Undated :

Previously Officially reported Missing, now Unofficially reported Wounded and Prisoners of War.

Second Lieutenant W. M. Crabbie, R.F.A., 1st Lowland Brig. (T.F.), attached R.F.C.

Second Lieutenant W. Reid, Royal Flying Corps.

Previously Officially reported Missing, now Unofficially reported Prisoner of War.

Second Lieutenant R. C. Macpherson, Black Watch and R.F.C.

Previously reported Missing, now Officially reported Prisoner of War.

Lieutenant A. G. Weir, Royal Flying Corps.

Previously Officially reported Missing, now Unofficially reported to be interned in Holland.

Captain A. D. Gaye, Bedford Regt. and R.F.C.

The following casualties have been reported from the Persian Gulf :—

Missing, believed Killed.

Lieutenant W. W. A. Burn, Royal Flying Corps.

Lieutenant G. P. Merz, Royal Flying Corps.

THE BRITISH AIR SERVICES.

UNDER this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the LONDON GAZETTE, it is not repeated in this column.

Royal Naval Air Service.

The following appeared among the Admiralty announcements of the 18th inst. :—

Temporary Second Lieut. (9th Batt. Royal Welsh Fusiliers), P. S. J. Owen, entered as Probationary Flight Sub-Lieutenant for temporary service with seniority of Aug. 17th, and appointed to "President," additional, for R.N.A.S.

H. Paget, granted temporary commission as Lieutenant-commander (R.N.V.R.) with seniority of July 1st, and appointed to "President," additional.

The following temporary commissions, R.N.V.R., have been granted with seniority of Aug. 17th: C. H. Keith, as Lieutenant; F. W. Hill, as Sub-Lieutenant; and A. W. Cassy (Ordinary Seaman), as Sub-Lieutenant, all appointed to "President," additional, for duty with R.N.A.S.

The following appeared among the Admiralty announcements of the 20th inst. :—

Squadron-Commander J. D. Mackworth, to "President," additional, for duty with Air Department. Aug. 5th.

The following have been entered as Probationary Flight Sub-Lieutenants, for temporary service, with seniority of Aug. 19th, and appointed to "President," additional, and R.N.A.S.: W. E. C. Parry, A. Sparrow, and S. E. Taylor.

The following appeared among the Admiralty announcements of the 21st inst. :—

Temporary Flight Sub-Lieutenant John D. Newberry has been transferred to Permanent List of Royal Naval Air Service. To date Aug. 19th, 1915.

The following appeared among the Admiralty announcements of the 23rd inst. :—

The undermentioned have been entered as Probationary Flight Sub-Lieutenants, for temporary service, with seniority as follows, and all appointed to "President," additional, for R.N.A.S.: E. L. Pralle and H. G. Holden, both of Aug. 16th, and A. P. Hann, of Aug. 21st.

The following appeared among the Admiralty announcements of the 24th inst. :—

Temporary Lieut.-Commander (R.N.V.R.) A. Congreve, to "President," additional, for R.N.A.S. Aug. 23rd.

Temporary Lieuts. (R.N.V.R.) S. M. Cleverley, E. D. Adams, W. E. Plaister, and the Hon. L. G. Guest, all to "President," additional, for R.N.A.S. Aug. 23rd.

The following temporary commissions have been granted:

Lieutenants (R.N.V.R.)—C. R. Andrews, J. K. Wells, and M. H. Smith, all with seniority of Aug. 23rd, and appointed to "President," additional, for R.N.A.S.

Sub-Lieutenants (R.N.V.R.)—J. M. Burke and L. W. M. Lloyd, both with seniority of Aug. 23rd, and appointed to "President," additional, for R.N.A.S.

Surgeon Probationer (R.N.V.R.)—E. P. Hicks, transferred to R.N.A.S. as Probationary Flight Sub-Lieutenant, for temporary service, with seniority of Aug. 23rd.

The following have been entered as Probationary Flight Sub-Lieutenants, with seniority of Aug. 23rd: A. V. Bowater and S. P. Martin (temporary).

G. Evans granted temporary commission as Lieutenant (R.N.V.R.), with seniority of Aug. 24th, and appointed to "President," additional, for duty with Commander Locker-Lampson.

Temporary Sub-Lieut. (R.N.V.R.) I. Macdonald entered as Probationary Flight Sub-Lieutenant, for temporary service, with seniority of Aug. 23rd, and appointed to "President," additional, for R.N.A.S.: temporary commission and appointment as Sub-Lieutenant (R.N.V.R.) terminated.

J. F. Hornsey and C. H. Hayward, both entered as Probationary Flight Lieutenants, for temporary service, with seniority of Aug. 30th, and appointed to "President," additional, for duty with R.N.A.S.

The undermentioned have been entered as Probationary Flight Sub-Lieutenants, for temporary service, with seniority as follows, and appointed to "President II," additional, for R.N.A.S.: R. D. Delamere, A. J. Nightingale, and A. T. N. Cowley, all of July 30th; R. J. O. Compston, R. W. Gow, A. B. Helbert, and A. M. Walstell, all of Aug. 24th; and H. V. German, of Aug. 26th.

The following have been entered as Warrant Officers, 2nd Grade,

for temporary service, with seniority of Aug. 24th, and appointed to "President II," additional, for R.N.A.S.: J. L. Carter-Cherry, C. J. Charles, and A. R. E. O'Donoghue.

Royal Flying Corps (Military Wing).

The following appeared in a supplement to the *London Gazette* published on the 18th inst. :—

Flying Officers to be Flight-Commanders.—Aug. 5th, 1915: Lieut. Dermott L. Allen, Princess Victoria's (Royal Irish Fusiliers), and to be temporary Captain whilst so employed. Capt. Joseph H. A. Landon, 4th Batt. (Territorial), Essex Regt. Capt. Frank W. Smith, 2nd South Midland Brigade, R.F.A., Territorial Force. Lieut. the Hon. William F. F. Sempill (Master of Sempill), Special Reserve, and to be temporary Captain whilst so employed; Aug. 6th, 1915.

Flying Officer.—Lieut. C. Cooper, Queen's (Royal West Surrey Regt.), Supplementary List. July 26th, 1915.

The following appeared in a supplement to the *London Gazette* published on the 19th inst. :—

Gunner J. R. Allan, from the Canadian Field Artillery, to be Second Lieutenant for duty with the Royal Flying Corps. July 1st, 1915.

The following appeared in the *London Gazette* of the 20th inst. :—
The name of Second Lieut. G. E. W. Humphery, Special Reserve, is as now described, and not as stated in the *Gazette* of July 29th, 1915.

Supplementary to Regular Corps.—To be Second Lieutenants (on probation): Geoffrey I. Taylor; July 10th, 1915. Victor D. Bell; Aug. 2nd, 1915. Mervyn Minter; Aug. 7th, 1915.

The following appeared in a supplement to the *London Gazette* issued on the 21st inst. :—

Assistant Equipment Officer.—Second Lieut. W. J. B. Curtis, Special Reserve. June 1st, 1915.

Flying Officer.—Second Lieut. C. A. Ridley, Royal Fusiliers (City of London Regt.), and to be seconded. Aug. 7th, 1915.

The following appeared in a supplement to the *London Gazette* issued on the 23rd inst. :—

Flying Officers to be Flight Commanders.—Lieut. (Hon. Capt.) G. B. Rickards, Special Reserve, and to be temporary Captain whilst so employed; Aug. 11th, 1915. Aug. 12th, 1915: Capt. B. Blood, 4th (Queen's Own) Hussars; Lieut. H. de Havilland, Special Reserve, and to be temporary Captain whilst so employed; Lieut. O. G. W. G. Lywood, Norfolk Regt., and to be temporary Captain whilst so employed; Lieut. E. L. M. L. Gower, Special Reserve, and to be temporary Captain whilst so employed.

Flying Officers.—Aug. 6th, 1915: Temporary Lieut. F. Bellamy, 16th (Reserve) Batt. Durham L.I., and to be transferred to the General List; Second Lieut. (on probation) C. R. Bertram, King Edward's Horse (The King's Oversea Dominions Regt.); Second Lieut. E. H. Colman, Special Reserve; Second Lieut. W. E. Somervell, Loyal North Lancashire Regt., and to be seconded; Second Lieut. A. Lees, Queen's Own (Royal West Kent Regt.), and to be seconded.

Supplementary to Regular Corps.—Second Lieutenants (on probation) confirmed in their rank: Walter J. B. Curtis, Reginald H. Carr, Frederick Dunn, E. R. Scholefield, Esca H. Coleman, George E. H. Fincham, Herbert A. Cooper.

Robert W. Nichol to be Second Lieutenant (on probation). July 5th, 1915.

The following appeared in the *London Gazette* of the 24th inst. :—

Flying Officers.—April 27th, 1915: Second Lieut. R. H. Carr, Special Reserve; Second Lieut. F. Dunn, Special Reserve; Second Lieut. E. R. Scholefield, Special Reserve. Second Lieut. C. Gallie, the Royal Scots Fusiliers, and to be seconded; June 20th, 1915. Second Lieut. W. V. Strugnell, the Hampshire Regt.; June 27th, 1915. Second Lieut. R. Collis, the East Surrey Regt.; June 29th, 1915. Second Lieut. H. A. Cooper, Special Reserve; July 13th, 1915. Aug. 14th, 1915: Lieut. N. M. Martin, 38th King George's Own Central India Horse, Indian Army; temporary Second Lieut. G. N. Teale, 8th (Service) Batt., Buffs (East Kent Regt.), and to be transferred to the General List: Second Lieut. G. Mountford, 5th Batt. (Territorial), Prince of Wales's (North Staffordshire Regt.); Second Lieut. G. E. H. Fincham, Special Reserve.

Supplementary to Regular Units or Corps.—To be Second Lieutenants (on probation): Aug. 5th, 1915: Leonard F. Hursthouse, William P. Cort, Ernest W. Barrett; Aug. 7th, 1915. Eric A. Cave; Aug. 9th, 1915.

Central Flying School.

The following appeared in a supplement to the *London Gazette* published on the 19th inst. :—

Officer in Charge of the Experimental Flight (graded for purposes of pay as a Squadron-Commander).—Capt. George B. Stopford, R.A., a Flight-Commander, Military Wing. Aug. 6th, 1915.

THE SPERRY DRIFT INDICATOR.

As was pointed out in an article on the aeroplane compass that appeared in our issue of August 13th, one of the greatest difficulties of aerial navigation by compass is that of ascertaining and making allowance for the amount of drift caused by a wind blowing at an angle to the course of the aeroplane. For short flights over known territory a pilot may, by picking out familiar landmarks, check his course and make corrections for drift, until in the course of his flight he passes over the particular places lying along the course line marked off on his chart. When it comes to long flights over unknown country, however, the matter is far more complicated, and it will be easily seen that a slight error in estimation of drift may quite conceivably cause the pilot to completely miss his objective.

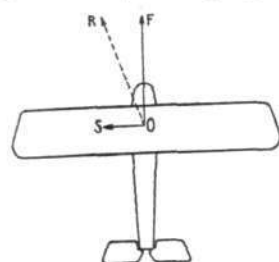


Fig. 1.

In the accompanying diagram OF is the direction in which the aeroplane is steering, and would be the direction of travel if there were no side wind. The line, OS, represents the side wind in direction, and its length bears the same ratio to the length of OF as the velocity of the side wind bears to the speed of the aeroplane. OR is the resultant of the two forces, and indicates the true direction in which the aeroplane is travelling.

To ascertain the exact direction of travel is the object of the Sperry drift indicator, for the illustration of which we are indebted to our New York contemporary, *Aerial*

ground can be seen. When looking through it five fine parallel hair lines are seen across the field of vision. The telescope is so mounted that it can be rotated about its longitudinal axis (which is, of course, always vertical) by means of the handle, D, until the hair lines are parallel to the path of terrestrial objects across the glasses of the telescope.

A pointer is provided by means of which it is possible to read on a graduated scale attached to the frame the angle between the true course taken by the aeroplane and the course indicated by the compass. The telescope is connected by Bowden cables to the adjustable lubber line of the compass, and in a two-seater machine the telescope may be placed in the observer's cockpit, while the compass is situated in front of the pilot. The observer will thus be constantly checking the drift by means of the telescope, and in adjusting it will at the same time adjust the lubber line by means of the Bowden cables. When thus dividing the task of navigation all the pilot has to do is to steer according to the lubber line, and the aeroplane will always be steering the desired course.

The compass used in this set is the Sperry adjustable lubber line compass, in which the bowl is supported from the outer casing by springs so as to protect it against vibration and shock on landing. The compass card and lubber line are painted with a luminous radium compound which permits of reading the card in the dark at a distance of three feet. In addition a small electric lamp is provided, current for which is furnished by a small dry cell battery. The weight of the drift indicator and

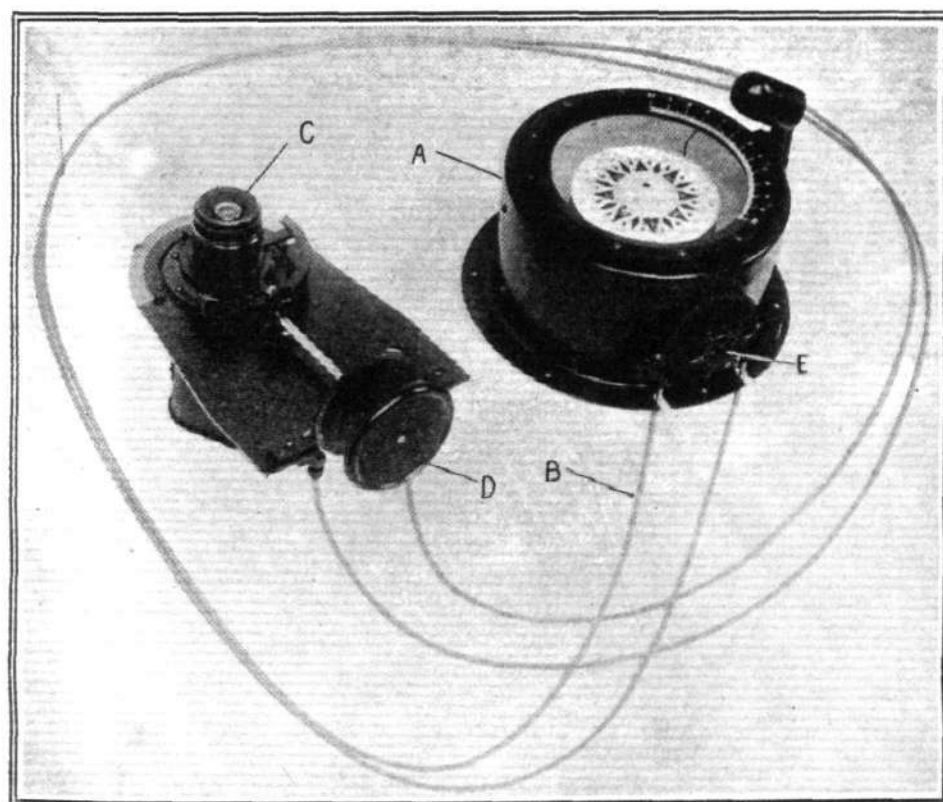


Fig. 2.—Sperry drift synchronised set, consisting of the telescopic drift indicator, C, and a Sperry adjustable lubber line compass, A, synchronously connected by double Bowden wires, B, so that when the drift of the aeroplane is determined by the telescope the compass is automatically set.

Age. This new instrument for aerial navigation is the product of the Sperry Gyroscope Co. of Brooklyn, N.Y., and consists essentially of a short prismatic monocular telescope through which the path of objects on the

compass complete is only 7 lbs., so that it can be carried on any machine, and would appear to be an invaluable addition to the outfit of an aeroplane used for cross-country work.

ROYAL AERO CLUB OF THE U.K. OFFICIAL NOTICES TO MEMBERS.

SPECIAL COMMITTEE MEETING.

A SPECIAL MEETING of The Committee was held on Tuesday, the 24th inst., when there were present:—Prof. A. K. Huntington, in the Chair, Mr. Griffith Brewer, Mr. Ernest C. Bucknall, Mr. Mervyn O'Gorman, C.B., and the Assistant Secretary.

Election of Members.—The following New Members were elected:—

- Lieut. Norman Carter Blanch, R.N.V.R.
- Second Lieut. Charles Meredith Bouverie Chapman, East Kent Regt.
- Charles Richard Fairey.
- Lieut. Edmund John Edward Hawkins, I.A., attached R.F.C.
- Henry Horsman.
- Mervyn Minter.
- Frank Hamilton Coole Rees.
- Lord Ruthven, D.L.
- Second Lieut. Frederick William Stent, R.F.C.
- Lieut. Clifford Harrison Stringer, 5th (Royal Irish) Lancers, attached R.F.C.

Temporary Honorary Member.—Flight Sub-Lieut. Warner Hutchins Peberdy, R.N.A.S., was elected an Honorary Member of the Club for two months, viz., to October 24th, 1915.

Aviators' Certificates.—The granting of Aviators' Certificates Nos. 1445-1595 was confirmed.

The granting of the following Aviators' Certificates was confirmed:—

- 1596 Hydro-aeroplane.—Samuel John Sibley (N.A.C. Biplane, Northern Aircraft Co., Lake Windermere). July 30th, 1915.
- 1597 2nd Lieut. Richard Borlase Jenkins (South Wales Borderers) (Maurice Farman Biplane, Military School, Farnborough). Aug. 5th, 1915.
- 1598 2nd Lieut. Charles Lindsay Murray Scott (North Stafford Regt.), (Maurice Farman Biplane, Military School, Farnborough). Aug. 13th, 1915.
- 1599 Norman Wallis (Caudron Biplane, Ruffy-Baumann School, Hendon). Aug. 15th, 1915.
- 1600 2nd Lieut. Arthur Edwin Pye Skett (Maurice Farman Biplane, Military School, Farnborough). Aug. 16th, 1915.
- 1601 2nd Lieut. Eric Digby Johnson (11th East Surrey Regt.), (Maurice Farman Biplane, Military School, Birmingham). Aug. 17th, 1915.
- 1602 Thomas Corby Wilson, jun. (Caudron Biplane, Ruffy-Baumann School, Hendon). Aug. 17th, 1915.
- 1603 Thomas Maxwell-Scott (L. and P. Biplane, London and Provincial School, Hendon). Aug. 17th, 1915.
- 1604 2nd Lieut. Edmund Roger Tempest (King's Own Yorkshire Light Infantry), (Maurice Farman Biplane, Military School, Birmingham). Aug. 18th, 1915.
- 1605 Henry Horsman (Maurice Farman Biplane, Military School, Brooklands). Aug. 18th, 1915.
- 1606 Francis Gordon Hogarth (Maurice Farman Biplane, Military School, Brooklands). Aug. 19th, 1915.

The following Aviators' Certificates were granted:—

- 1607 Flight Sub-Lieut. John Bevan Cussen, R.N.A.S. (Maurice Farman Biplane, Royal Naval Air Station, Eastbourne). Aug. 5th, 1915.
- 1608 Walter Leslie Eaton (Beatty-Wright Biplane, Beatty School, Hendon). Aug. 12th, 1915.
- 1609 2nd Lieut. Duncan William Grinnell-Milne (Royal Fusiliers) (Maurice Farman Biplane, Military School, Shoreham). Aug. 17th, 1915.
- 1610 2nd Lieut. Charles Henry Awcock, R.G.A. (Maurice Farman Biplane, British Flying School, Le Crotoy, France). Aug. 18th, 1915.
- 1611 2nd Lieut. Vernon Busby, R.E. (Maurice Farman Biplane, Military School, Birmingham). Aug. 18th, 1915.
- 1612 2nd Lieut. George Edward McEwen (Bedfordshire Regt.), (Maurice Farman Biplane, Military School, Ruislip). Aug. 18th, 1915.
- 1613 Charles Hugh Bell (Hall Biplane, Hall School, Hendon). Aug. 19th, 1915.
- 1614 Sergt. Robert Macfarlane Murie, R.F.C. (Maurice Farman Biplane, Military School, Farnborough). Aug. 19th, 1915.
- 1615 2nd Lieut. Arthur John Capel (Somerset Light Infantry), (Maurice Farman Biplane, British Flying School, Le Crotoy, France). Aug. 19th, 1915.
- 1616 2nd Lieut. Ewen Cameron (Staffordshire Yeomanry), (Maurice Farman Biplane, Military School, Ruislip). Aug. 19th, 1915.

- 1617 2nd Lieut. Norman Arthur Bolton, R.F.A. (Maurice Farman Biplane, Military School, Shoreham). Aug. 19th, 1915.
- 1618 Flight Sub-Lieut. Cecil Bell Gasson, R.N.A.S. (Grahame-White Biplane, Grahame-White School, Hendon). Aug. 20th, 1915.
- 1619 Sergt. Thomas Frederick Boyd Carlisle, R.F.C. (Maurice Farman Biplane, Military School, Ruislip). Aug. 20th, 1915.
- 1620 Sergt. Herbert Howard Perry, R.F.C. (Maurice Farman Biplane, Military School, Ruislip). Aug. 20th, 1915.
- 1621 2nd Lieut. Kenneth Noble Pearson, R.E. (Maurice Farman Biplane, Military School, Birmingham). Aug. 20th, 1915.
- 1622 Lieut. Leonard Herbert Sweet (Hampshire Regt.) (Maurice Farman Biplane, British Flying School, Le Crotoy, France). Aug. 20th, 1915.
- 1623 Corporal Frank Edward Goodrich (48th Canadian Highlanders) (Hall Biplane, Hall School, Hendon). Aug. 20th, 1915.
- 1624 Capt. John Hugh Samuel Tyssen (North Somerset Yeomanry) (Maurice Farman Biplane, Military School, Shoreham). Aug. 20th, 1915.
- 1625 Lieut. Thomas Malcolm Dickinson (16th Cavalry, I.A.) (Beatty-Wright Biplane, Beatty School, Hendon). Aug. 22nd, 1915.
- 1626 2nd Lieut. Eric Craven Jowett (12th Northumberland Fusiliers), (Hall Biplane, Hall School, Hendon). Aug. 22nd, 1915.
- 1627 Lieut. Arthur Ramsay Stanley Clarke (1st Dorset Regt.), (Maurice Farman Biplane, Military School, Birmingham). Aug. 23rd, 1915.
- 1628 Flight Sub-Lieut. Lister Briffault, R.N.A.S. (Maurice Farman Biplane, Royal Naval Air Station, Chingford). Aug. 23rd, 1915.
- 1629 2nd Lieut. L. Roy Heywood, R.E. (Maurice Farman Biplane, Military School, Birmingham). Aug. 23rd, 1915.

AMERICAN CERTIFICATE.

- 339 W. B. Evans (Wright Biplane, Wright Flying School, Dayton, Ohio). Aug. 7th, 1915.

British Altitude Record.—The report of the National Physical Laboratory on the barograph and chart used by Mr. H. G. Hawker in his flight on a Sopwith Biplane at Hendon on June 6th, 1915, was received.

The height attained in this flight being 18,393 feet, it was unanimously resolved that the British Altitude Record for pilot alone be granted to Mr. H. G. Hawker.

The previous Record was held by Eng.-Lieut. E. F. Briggs, R.N., who attained a height of 14,920 feet on a Blériot monoplane at Eastchurch on March 11th, 1914.

Extension of the Hours of Opening the Club House.—The Committee considered the question of extending the hours of opening the Club House.

It being possible to make the necessary arrangements, it was decided to extend the hours of opening up to 10.30 p.m. each day, including Sunday.

The new arrangement will come into force some time in September, and the actual date will be announced next week.

THE FLYING SERVICES FUND

administered by

THE ROYAL AERO CLUB.

THE Flying Services Fund has been instituted by the Royal Aero Club for the benefit of officers and men of the Royal Naval Air Service and the Royal Flying Corps who are incapacitated on active service, and for the widows and dependants of those who are killed.

The Fund is intended for the benefit of all ranks, but especially for petty officers, non-commissioned officers and men.

Forms of application for assistance can be obtained from the Royal Aero Club, 166, Piccadilly, London, W.

Subscriptions.		£	s.	d.
Total subscriptions received to August 18th, 1915		9,487	14	9
Collected at an Organ Recital at Wye ...		0	5	0
Total, August 25th, 1915 ...		9,487	19	9

166, Piccadilly, W. B. STEVENSON, Assistant Secretary.

FROM THE BRITISH FLYING GROUNDS.

London Aerodrome, Collindale Avenue, Hendon.

Grahame-White School.—Last week, straights with instructor: Probationary Flight Sub-Lieuts. Beare, Biscoe, Cross, Corry, Davies, Ford, Gammon, Gasson, Hadow, Man, Sadler, Smethurst and Till. Circuits with instructor: Probationary Flight Sub-Lieuts. Beare, Ford, Gasson, Roach-Pierson and Smethurst. Circuits and eights: Probationary Flight Sub-Lieut. Gasson.

Brevet during week: Probationary Flight Sub-Lieut. Gasson.

Instructors: Messrs. Manton, Russell and Winter.

Beatty School.—The following pupils received instruction during last week:—With instructors on Beatty-Wright machines: Messrs. Arbon (25 mins.), Bond (55), Boyle (8), Davison (10), Delves (27), Dickenson (85), FitzHerbert (50), T. Jones (27), King (42), Morgan (40), Ross (37), Sampson (35), Theo (35), Vickers (15), Hoskier (10). On Caudron machines: Messrs. Arter (10 mins.), Boysen (30), Broadbent (10), Cadogan (30), Coates (10), Collett (5), Cox (30), Davison (10), Fawcett (35), Goodfellow (95), Hoskins (6), L. F. Jones (20), Kirkwood (10), Middleton (10), Moxon (15), Nicholson (20), Overton (10), Tremlett (10), Whincup (30), Wiles (20), Campbell (50), Thomas (75), Summers (40), Mellings (20), Bowick (10), Begg (20), Grant-Suttie (40), Richard (30), Byrne (30), Cumming (10). The instructors were Messrs. G. W. Beatty, W. Roche-Kelly, C. B. Proddger, R. Kenworthy, and A. E. Mitchell, the machines in use being Beatty-Wright dual-control and single-seater propeller biplanes and Caudron tractors.

Certificates were taken during the week by Lieut. T. M. Dickenson and Mr. A. Goodfellow, each of whom made excellent flights and completed the tests in 30 mins., Mr. Goodfellow *volplaning* in splendid style from an altitude of 1,700 ft.

Exhibition flights were given on Thursday, Saturday, and Sunday, and 7 passenger flights were taken.

Hall School.—As usual, the Hall School put in highly satisfactory work last week. The following pupils qualified for and took excellent Royal Aero Club certificates: Lieut. Jowett, Charles Bell and E. F. Goodrich. The following pupils received tuition with instructor J. Stevens: Charles Bell, 14 circuits and 2 figures of eight; Lieut. Jowett, 14 circuits and 2 figures of eight; E. F. Goodrich, 10 circuits and 4 figures of eight. With Instructor Cecil M. Hill: Messrs. Goodrich (8 mins.), Littlewood (30), Wennner (40), Yonge (36), Russell (40), Hatchman (36), Huggan (40), Watson (34), Drew (26), Scott (20), Hall (11), Ackroyd (18), Butterworth (30), Brandon (33), Sepulchre (13), Hooker (11), Punnett (11), Wilkins (12), Bond (6), Cook (22), Arnsby (19), Mason (6), Cownie (11), Bayley (20), Hamer (14), Stirling (6) and Broad (19).

Exhibition flights were made during the week-end by J. L. Hall, who gave an exhibition of looping the loop; C. M. Hill, who made a splendid flight terminating with a multiple spiral *vol plané*; J. Stevens, who gave an exhibition of right and left highly banked corkscrews; and Charles Bell, who made a "joy ride *de luxe*."

London and Provincial Aviation Co.—During last week the following pupils were rolling: Messrs. Renton,



Copyright, F. N. Birkett, from the F.N.B. Series of Aviators.

AT THE GRAHAME-WHITE FLYING SCHOOL.—Some pupils and instructors. From left to right: (top row) 1. Flight Sub-Lieut. A. Gammon. 2. Instructor J. S. B. Winter. 3. Flight Sub-Lieut. M. Blake. 4. Dr. J. H. Hadden. 5. Instructor Marcus D. Manton. 6. Flight Sub-Lieut. H. Tyndale-Biscoe. (Bottom row) 7. Flight Sub-Lieut. E. L. Ford. 8. Flight Sub-Lieut. S. G. Beare. 9. Flight Sub-Lieut. P. Roach-Pierson. 10. Flight Sub-Lieut. L. de G. Sieveking. 11. Flight Sub-Lieut. L. E. Murray. 12. Flight Sub-Lieut. G. Smethurst. 13. Flight Sub-Lieut. E. W. Corry. 14. Flight Sub-Lieut. J. A. Saddler.

Grimwade, Woolley, Jamieson, Franklin, and Rochford. Messrs. Frost, May, Blackburne-Maze, Ross, Sargood, and Willcox straights. Figures of eight or circuits alone: Messrs. Woodley, Moynihan, and Roe.

Two good certificates were taken by Mr. H. Conner and Mr. T. Maxwell-Scott.

Instructors: Messrs. M. G. Smiles, W. T. Warren, J. H. James, G. Irwing, and C. Jacques.

Ruffy-Baumann School.—Much work was accomplished last week by the following pupils, particularly Second-Lieutenant M. G. Phillips, who is making very rapid progress. Owens (26 mins.), Bailey (32), Ball (20), Brand (12), Hughes (48), Prothero (24), Stewart (48), Stewart (72), Muspratt (56), Hodgson (6), Rees (60), Phillips (98), Sherwood (38), Liddell (10), Belton (10), Young (28), Gardner (25). The last pupil completed two sets of "eights" for ticket, and has yet to effect vol

plané to complete tests. Instructors: Edouard Baumann, Felix Ruffy, Gino Virgilio, Clarence Winchester.

Midland Flying School, Birmingham.

PUPILS at work during last week with instructor on machine: C. Kayfong, J. Tzesing, C. Mento, C. Chong, W. Watson, and K. Jokping. Straights or rolling alone: Y. Liu, S. K. Lee, and L. Monfee three trips each, time 15 minutes. Instructor: S. Summerfield.

Northern Aircraft Co., Ltd.

The Seaplane School, Windermere.—Last week with instructor: Amble (14 mins.), Benson (25), Ingham (44), Inglis (51), Lawton (20), Latch (15), Part (53), Ridgway (29), Robertson (43), Robinson (25), Shaw (41), Yates (13), Macintyre (13), and Capt. Everidge (16). With instructor as passenger: Laidler (37 mins.), Macaskie (50), Reid (42), Ridgway (9) and Slingsby



Copyright, F. N. Birkett, from the F.N.B. Series of Aviators.

Some pupils who have recently secured their Royal Aero Club certificates at the various flying schools.—1. Flight Sub-Lieut. M. A. Simpson, R.N.A.S., Grahame-White School, June 10th. 2. Flight Sub-Lieut. E. P. Hardman, R.N.A.S., Grahame-White School, July 5th. 3. Flight Sub-Lieut. J. E. Minifie, Grahame-White School (certificate not yet officially notified). 4. Mr. H. Lee Wood, L. and P. School, July 14th. 5. Second Lieut. R. Raymond-Barker, 12th Northumberland Fusiliers, Hall School, July 18th. 6. Mr. Ernest H. Pullinger, L. and P. School, July 6th.



A batch of pupils and instructors (60 h.p. Wright) at the Beatty School, Hendon.—From left to right: (back row) Messrs. Fox, Hoskier, Crossman, Eaton, Lieut. Ross, Prodger (instructor), Arbon, Theo and Delves; (front row) Messrs. Jones, Kenworthy (instructor) and King.

(31). Straights alone: Laidler (29 mins.) and Macaskie (10).

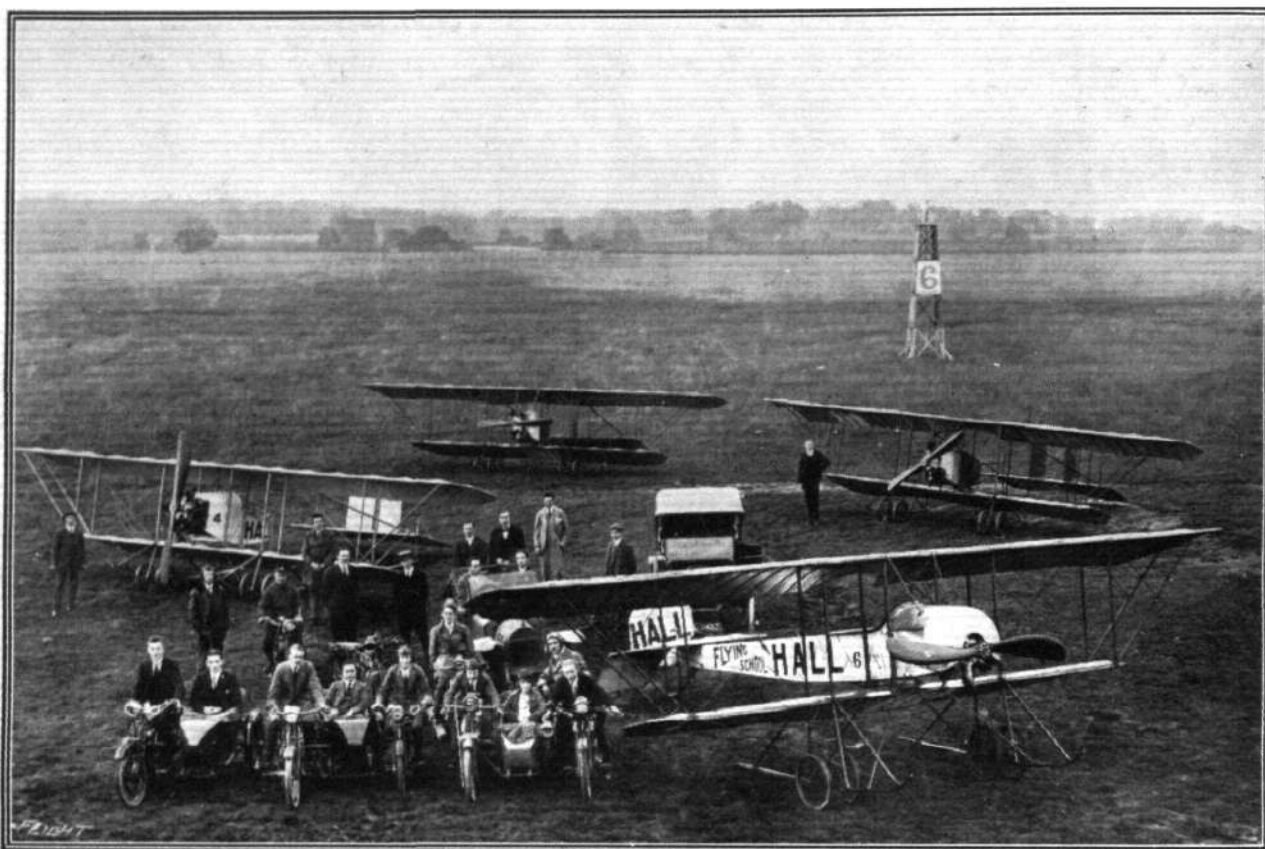
Machines in use: N.A.C. propeller biplane, 50 Gnome; N.A.C. pusher monoplane, 80 Gnome.

✱ ✱ ✱ FLYING AT HENDON.

AFTER several days of fine, calm weather, it was rather disappointing that last Saturday should see a return to the somewhat unusual windy condition that has been dealt out to us recently by the Clerk of the Weather. On this last Saturday the wind was just sufficiently high to render flying tricky and arduous, but otherwise it was by no means an unpleasant afternoon. One of the first familiar faces we happened to encounter was that of Lieut. Clive F. Collett, R.F.C., now well on the road to recovery after his recent accident at the aerodrome on a Morane. Seated in a self-propelled invalid chair, he took up his position by "the office under this stand," and spent a restful afternoon watching the flying. Punctually at 3 o'clock, J. S. B. Winter started off with a passenger on the 50 h.p. G.-W. school 'bus, but only managed a straight across the aerodrome, the wind making its presence known firmly but by no means gently the meanwhile. However, another start was made shortly after with more success for man and machine. C. B. Prodger followed next on the 60 h.p. Beatty-Wright with an exhibition of banking and sharp turns in a fair wind, after which he went up again with a passenger. M. Osipenko then brought out his old favourite, the 100 h.p. Grahame-White five-seater all-British biplane (as per megaphone), and demonstrated that he could pilot this big biplane in a breeze as well as in a calm. C. Grahame-White also piloted this machine on one or two occasions. Two 100 h.p. Curtiss tractors next took the air, and started

A number of passengers were carried, and both instructors gave demonstration flights on both machines. Considering the weather has been far from good, over ten hours' flying tuition is a very fair week's work.

off on a mission unknown (to some). Osipenko then commenced to fluctuate with the five-seater almost as fast as did the recording pen on the ground anemometer, so that one soon lost count of his trips with pairs of passengers. In the meanwhile W. Roche-Kelly came out on the 50 h.p. Beatty-Wright and put in his share of banking, whilst W. Birchenough took G. W. Beatty up for a joy ride in an 80 h.p. Henry Farman—as someone facetiously put it, to show him, Beatty, what it is like to fly in an *aeroplane*! A new 60 h.p. G.-W. bi-rudder school 'bus made its maiden flights, piloted by Marcus D. Manton, and further passenger flights were put up by Winter on the other G.-W. 'bus, and Roche-Kelly on the 50 h.p. Beatty-Wright. Birchenough also made another flight on the Henry Farman, this time going in for an altitude stunt. Sydney Pickles then took up R. P. Grimmer for a 12 min. flight in the 125 h.p. Mann twin-propeller biplane, climbing to some 2,000 ft. After this the writer joined him for 10 mins., during which time he put the machine through various evolutions in order to demonstrate its behaviour under varying conditions. We were particularly struck with the machine's steadiness, and the absence of vibration, especially during banked right and left hand turns. The view obtained from the observer's seat is certainly excellent, and the absence of oil-saturated exhaust is a great advantage. The first 1,000 ft. was accomplished in exactly 2 mins. without any forcing. It must be admitted that this machine, the first to be



Copyright, F. N. Birkett, from the F.N.B. Series of Aviators.

A recent photograph of a number of pupils and machines of the Hall Flying School, Hendon. Mr. Hall is standing in front of machine No. 4, on right of propeller.

produced, gives promise of the successful future its designers, Messrs. Mann and Grimmer, hope for and deserve. Other passenger flights were to be made, but as the air, and ground, was by now getting somewhat filled up with "Fordrons" (Fords of the air), &c., on school routine, it was decided to relinquish further flying rights for that evening.

A considerable improvement took place on Sunday, there being little wind, plenty of sun, a good attendance, and some excellent flying. Proceedings commenced at about a quarter to three, and continued until dusk. Perhaps the most important event of the day was the execution of the first loop in public since the war started. This was put up, quite on the spur of the moment, by J. L. Hall, who was flying his new 50 h.p. Caudron, recently delivered to him by the British Caudron Co. He was up about 500 ft., and the machine had been handling so nicely that, although he was not strapped in,



New British Altitude Record.

FROM the Royal Aero Club official notices on page 630, it will be seen that the figure for the British altitude record, pilot alone, made by Mr. H. G. Hawker, on a Sopwith biplane, at Hendon on June 6th last, is 18,393 ft. The previous official record was that of Eng.-Lieut. E. F. Briggs, R.N., 14,920 ft. on a Blériot at Eastchurch on March 11th, 1914.

Royal Aero Club Extends its Hours.

AN item in the Royal Aero Club official notices this week which will be welcomed by many members is the announcement that the Club House will, starting next month, be open until 10.30 p.m. each day, including Sunday. Hitherto the Club has been closed much earlier, and has not been open at all on Sundays.

Lord Kitchener and the R.F.C. at the Front.

DURING his visit to the front last week Lord Kitchener inspected a squadron of the Royal Flying Corps at the British Headquarters.

he thought he would have a try at it—and did. Throughout the whole of the afternoon the machines went up thick and fast, several being in the air together on many occasions. M. Osipenko took up many passengers on both the 50 h.p. G.W. school 'bus and the 100 h.p. five-seater. Marcus D. Manton and J. S. B. Winter also got busy on the other 50 h.p. school 'buses. Geo. W. Beatty blossomed out with exhibitions on the new 45 h.p. Beatty-Caudron, and R. Kenworthy piloted a similar machine. Another representative of the Beatty school was W. Roche-Kelly on the 50 h.p. Beatty-Wright. E. Baumann and G. Virgilio made several flights on the 60 h.p. and 50 h.p. Ruffy-Baumann Caudrons respectively. A new pilot also made his *début* as an exhibition flyer in the person of Geo. Irwing on a 35 h.p. L. and P. biplane. Sydney Pickles was also out on the 125 h.p. Mann twin-propeller biplane, but engine trouble prevented any extended flights being made.



Badge for R.F.C. Observers.

AN Army Order issued on Aug. 23rd announced that a badge consisting of the letter "O" and an outspread wing has been approved for wear by officers who are on the list of qualified observers of the Royal Flying Corps.

The badge will be worn on the left breast above medal ribbons in the same manner as the flying badge is worn by qualified pilots.

Montreal Gives a Gun-carrying Biplane.

THE Colonial Office has been informed by the Overseas Club that the sum of £2,250 has been received from Montreal to pay for a 100 h.p. Gnome-Vickers gun-mounted biplane, to be called "Montreal No. 1," and added to the Imperial Aircraft Flotilla.

Tasmania also Gives an Aeroplane.

IT is also announced that the Premier of Tasmania has authorised Sir John Montall, the State's Agent-General, to present, on behalf of the Government of Tasmania, an aeroplane to the Overseas Aircraft Flotilla.

EDDIES.

It was extremely good news to learn that M. Eugene Gilbert, the famous French aviator, had succeeded in passing the frontier of Switzerland into his own country. It may be recalled that some little time ago the opinion was expressed in "Eddies" that Gilbert would in all probability have to give his word of honour not to attempt to escape, and that therefore his fellow pilot Garros, who is a prisoner of war with the Germans, was in a way better off, as he would at least be free to attempt to escape should the opportunity present itself. According to the *Daily Mail's* Paris correspondent, Gilbert was on parole the first part of his captivity. Later this was withdrawn, and hence he has been justified in successfully making his way back to his beloved France. Perhaps some day Garros may have equally good fortune, who knows?

x x x

I captured a joke the other day from one of the really good sort who never mind telling a joke even when the laugh is against themselves. The centre scene was a Zeppelin raid some time ago. When the bombs began to fall around, my friend, who was meandering down the particular street favoured by the nocturnal visitors, noticed a standard carrying a small cluster of electric lights, which was uncomfortably close to a point that might quite conceivably be one of the objects of the raid.

Confusion, more or less acute, had taken charge of the locality, and good intentions, having as their object the extinction of these lights, were frustrated by reason of nobody being able to find the switch for these particular lights. As the bombs dropped ever closer, the candle power of the bulbs seemed to my nervous friend to increase all out of reason. By shouting long enough and loud enough someone was at last induced to bring a ladder, which willing hands steadied while the hero of my story raced, or rather tried to race, up towards the cluster of lights that winked mockingly at his efforts. In his excitement he did not notice that the second rung of the ladder was missing, and repeatedly put his foot on a step that "wasn't there." For a moment he thought that he must have cold feet to such an extent that he could not even climb a ladder, until he discovered the true cause of his troubles. After that it did not take him long to get to the top, but, as luck would have it, just as he put out his hand to unscrew the bulbs, the light went out. Someone had muddled on to the switch at last!

x x x

Going for a little spin at Hendon on his new 45 h.p. Anzani-Caudron the other day, Hall, finding his machine in perfect trim, and his engine pulling like a crack tug-of-war team, could not resist the temptation of settling to his own satisfaction the question whether or not his



CANADIANS LEARN TO FLY IN THE UNITED STATES.—So many Canadians are desirous of learning to operate aeroplanes for war service that the aviation schools in Canada cannot accommodate all of them. Many are being instructed in the United States. The above group, photographed in front of a Thomas warplane at Ithaca, N.Y., includes (left to right) Frank McGill, 100-yard and 1-mile Canadian swimming champion; George Hodgson, 100-yard Olympic swimming champion; Frank Burnside, the instructor in aviation at the Thomas School; Phillip Fisher and Hugh Peck.

trusty little mount would loop with so heavy a pilot. Although not strapped in, and with special preparations entirely absent, having had no thought of looping when starting on his flight, Hall shoved her nose down and pulled the stick, and lo! a beautiful loop which, coming unexpectedly as it did, gave everybody quite a start. Everything went well, and what was, if I am not mistaken, the first loop by a civilian pilot in public, since the outbreak of war, was accomplished.

x x x

Ever since acquiring his fleet of Caudrons, Beatty has had a great leaning towards these 'buses, and only the difficulty of changing over to the standard control from the peculiar Wright control, which, once mastered, is, no doubt, highly satisfactory, but which must, I should think, be extremely difficult to unlearn, has prevented him from enjoying the comforts of the closed-in Caudron nacelle. About a week ago, however, Beatty made up his mind to forget temporarily the two sticks which he has manipulated so long and so successfully, and to begin over again by familiarising himself with the central lever. With Beatty there is never far between the making of a resolution and putting it into effect. He was at it, therefore, immediately in his typically determined way, and is, I hear, already flying the Caudron as well as the next man. Knowing Beatty as I do, it would not surprise me in the least to see him presently sitting neck and neck with some of the older hands in their own particular field of handling the Caudron.

x x x

With the alertness for sensing the ever-occurring changes in requirements, that is so characteristically American, and with their up-to-date methods of manufacture, that are typical of the Curtiss Aeroplane Company, and which enable them to meet these requirements, this firm have lately produced a machine which will be known as Model R, designed with a view to combine good speed and climb with weight-carrying

capacity. This Curtiss military tractor is in its present form built as a three seater, the observers being placed approximately over the c.g., while the pilot sits well back in a separate cockpit slightly to the rear of the planes. The engine—a 160 h.p. Curtiss—drives a three-bladed propeller, which, as in other types of Curtiss machines, is of comparatively small diameter, allowing a very low chassis to be employed. Judging from reports of the preliminary flights that took place at the firm's flying ground at Buffalo, N.Y., the new machine promises exceedingly well. In the first trip the pilot, Raymond V. Morris, accompanied by two passengers, Lieut. McIlvain of the Marine Corps and C. W. Webster of the Curtiss Aeroplane Co., climbed to a height of 8,200 feet in 27 minutes, which besides constituting an American altitude record, sounds pretty satisfactory.

x x x

Later in the day Morris was up again, this time accompanied by three passengers, and established another American record by reaching a height of 8,300 ft. Had it not been for the fact that the barograph took it into its head to cease barographing at this point, a considerably greater height would have been achieved. Experts who witnessed the flight, the official observer, who was one of the passengers, and the pilot all agreed, I understand, that the machine would have been good for another 4,000 ft. at least. When a new barograph, registering up to 25,000 ft., is ready, Morris and a passenger are to have a try at beating one or two world's records, not only the one of 6,170 metres, established by Lieut. Bier at Aspern in June, 1914, but also Oelerich's record of 8,150 metres for pilot alone, which he made at Lindenthal, Leipzig, in July, 1914. And, knowing how well the smaller Curtiss machines have climbed over here with Sydney Pickles at the helm, I shall not be in the least surprised either to see Morris getting ahead of the German record.

"ÆOLUS."

⊗ ⊗ ⊗ ⊗



A 100 h.p. Vickers gun 'bus, reproduced from a photo. taken somewhere on earth by a reader of "FLIGHT."

SOME AMERICAN AERO ENGINES.

THE ASHMUSEN.

FIRST put on the market early in 1914, after many years of experimenting, the engines manufactured by the Ashmussen Manufacturing Company, of Woonsocket, R.I., are of the horizontal opposed type, a type that is not to be found in very great numbers, in spite of the advantages it offers in respect to perfect primary and secondary balance, construction, &c. The latest models of the Ashmussen aero engines, a 70 h.p. 8-cylinder and a 105 h.p. 12-cylinder, differ in several details from the first models to be turned out, which were of 60 h.p. and 90 h.p.

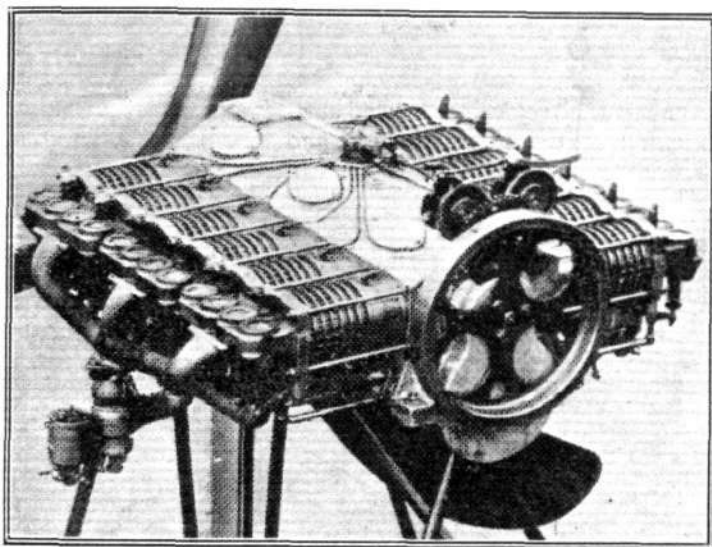


Fig. 1—General view of the 12-cyl. 105 h.p. Ashmussen aero engine. Note the longitudinal cooling flutes on the cylinders.

8-cylinder, but the main characteristics remain the same, viz., horizontal opposed cylinders, with an unusual system of cooling. In the 60 h.p. and 90 h.p. models the eight cylinders are arranged in groups of four directly opposed; the cylinder heads, containing the valves, for each group are cast *en bloc*, and the cylinders are cast separately. In the 12-cylinder model, however, the cylinder heads are cast in pairs, although they abut against each other, so that they practically form one casting for each set of six cylinders.

Bolts passing through the cylinder heads to the crank case serve to hold the cylinders in position on the latter. The H-section connecting rod of each opposing cylinder bears upon the same crank pin, but only embraces the latter by a little less than half of its circumference. Each big end, however, has a strap passing round and bearing on the other so that they are held together on the crank pin, being at the same time capable of angular movement relatively to each other in following the path of the crank pin. This may perhaps be made clear on referring to the two connecting rods shown in the lower right-hand corner of Fig. 3.

In the 70 h.p. and 105 h.p. models the valves are placed vertically side by side in the cylinder heads, and are operated through bell-crank levers and tappet rods from a single camshaft mounted below the crankshaft. The propeller, or tractor screw, as the case may be, is mounted on the camshaft, and is thus driven at half engine speed, which is about 1,800 r.p.m. There are two carburetors, one for each group of cylinders, the

throttles being coupled up to one control lever. The magneto is mounted on the top of the crank case, where it is driven by spur gearing from the flywheel end of the crankshaft. Ball bearings of ample proportions support the crankshaft and camshaft. A very efficient and reliable system of lubrication has been evolved by the designers in which a small positively driven pump mounted on the top of and in the centre of the crank case forces oil direct to the main bearings, cylinder walls, &c.

The cooling system previously referred to is of exceptional interest, and to a certain extent follows the practice adopted by some motor cycle designers on racing machines. In addition to a number of radiating circumferential fins formed on the outsides of the cylinders, there are a series of "flutes" or tubes disposed around the wall, extending about halfway the length of the cylinder. These flutes are open at their inner ends, and the other ends lead into a chamber formed in the cylinder head. From here is a connection leading to the carburettor air-intake, so that the induction of the engine draws air in through the flutes into the passage in the cylinder head, and thence to the carburettor. The result is, that the latter gets a supply of warm air, and the upper portions of the cylinders are cooled by the constant flow of cold air drawn through the flutes. By this means the cylinders are kept at a proper working temperature, and the heated mixture makes for a very

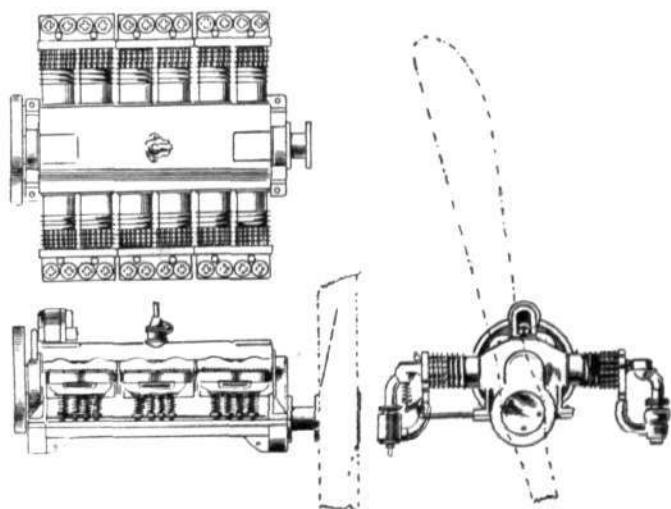


Fig. 2.—Plan, end and side elevations of the 12-cyl. 105 h.p. Ashmussen aero engine. These drawings show the connections between the cylinder heads and carburetors through which the air passes to the latter from the cooling flutes.

economical and more positive explosion than if it were cold. This also allows the use of a much lower grade of fuel.

The 12-cylinder 105 h.p. model compares very favourably with other engines of equal power on the score of weight and dimensions. The former, including magneto, carburettor, &c., is 345 lbs., which brings the weight per horse-power to 3.3 lbs. The over-all dimensions are: Length, 3 ft. 4 ins.—this, of course, varies within a few inches according to the type of drive for propeller or tractor screw employed; width, 2 ft. 10 ins.; and height, 1 ft. 6 ins. The crank case is 13 ins. wide. This particular engine has a bore of $3\frac{3}{4}$ ins. and a stroke of $4\frac{1}{2}$ ins.

Quite an important feature with the Ashmussen engines

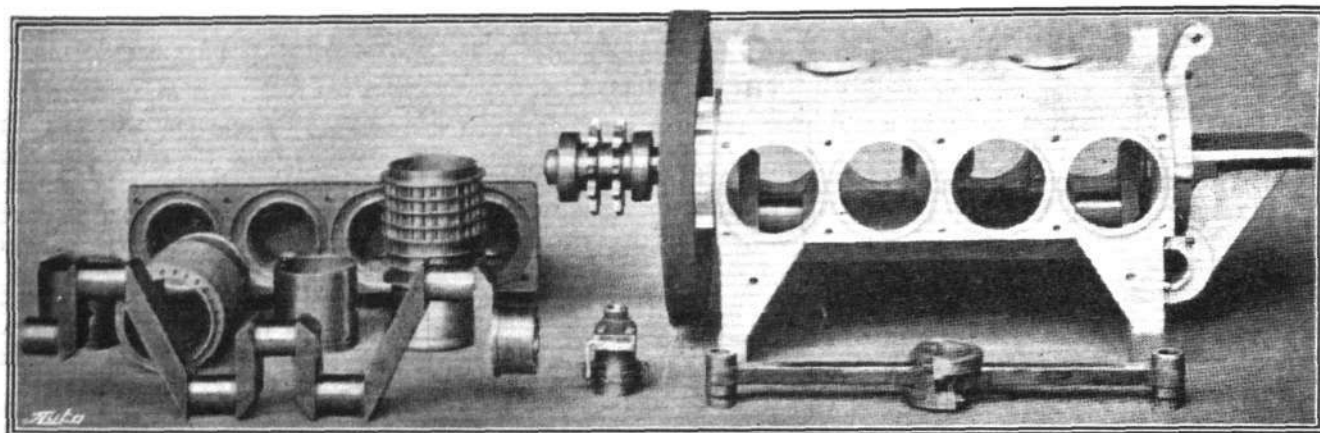


Fig. 3.—Some component parts of an 8-cyl. Ashmusen aero engine, as fitted to a Wright model B biplane.

is that they can be taken apart very easily without removing the engine from its bed. The cylinders can readily be withdrawn from the crank case, leaving exposed the pistons, connecting rods, crankshaft, &c., whilst the

removal of the cylinder heads enables an inspection to be made of the valve pockets and seatings. Ashmusen engines have been used on Blérot-type monoplanes, Curtiss tractor biplanes and Wright Model B biplanes.

OVER THE LINES IN A BATTLE-PLANE.

THE following very vivid pen-picture of a flight over the trenches, officially sanctioned by the French authorities, is by Mr. Ralph Pulitzer, the Editor-in-Chief of the *New York World*, in which paper the account appeared. The machine which carried Mr. Pulitzer was, we believe, a twin-tractor Caudron biplane, and, if we may hazard a guess, we think the pilot will probably be found in Poulet:—

"I have just returned from a unique visit to the front. This afternoon I flew in an army aeroplane from Paris to the fighting line, skirted these lines for a few kilometres, and flew back to Paris. We made the round trip without a break.

"I am indebted to the quite exceptional kindness of the French Foreign Office and the French War Office for this flight. No other civilian has been allowed to ascend in a French army aeroplane at all, and as for visiting the front in one, it has apparently been undreamed of.

"I received definite word yesterday evening that at 4.30 this afternoon I would find a military motor at the door of my hotel, that it would take me to the great aviation station at —, in the suburbs of Paris, and that at 5 o'clock a double-motored battleplane would set flight with me. At a couple of minutes past 5 I was struggling into a heavy leather suit, which I put on over my regular clothes, and a heavy padded helmet which was carefully fastened under my chin by a buttoned flap and also an elastic band. A minute later I was climbing sinuously into my seat in the front of the aeroplane, while my pilot wormed his way into his seat a few feet behind me. A few seconds later the two great propellers (or, rather, tractors) started to flash around with a snap and a roar, the battleplane started slowly forward, gained in speed until we were running along the big field like a racing automobile; then suddenly the people standing round dropped away from us like a gigantic express elevator load leaving one standing on the upper floor of a skyscraper, and in a moment more the earth had become a strange and placid panorama with which we had no connection or concern. On and up, on and up we flew, headed straight as an arrow for the closest portion of the battlefront, 90 kilometres (56 miles) away.

"As a vast crazy quilt of numberless shades of green and brown rolled slowly below as I had time to pay more attention to my immediate surroundings. I sat in the front or observer's seat of a great new French biplane, which the English call a battleplane and the French call an *avions de chasse*, or hunting aeroplane. They call their smaller one-motored machines, which are used chiefly for directing artillery fire by wireless, their *avions de regloge*, or regulating aeroplanes.

"But these great biplanes, with two independent motors, each driving a wheel so that if one is shot to pieces the flight can continue on the other, they fondly call their hunting aeroplanes, for with them they hunt the Taubes and the Aviatiks of the enemy, and they tell me that their enemy generally gives them a wide berth.

"I found myself sitting in a little cockpit strapped to a comfortable seat. In the floor of the little cockpit right in front of my feet was a little glass window, through which I could watch the ground passing directly (though some thousand feet) underneath. I could get an uninterrupted view of the scenery across a space of about 4 feet right ahead. Further to right and left the view flickered curiously through the lightning swift twirling of the propeller blades.

"Don't stretch your head out in front to either side," had cautioned the aviation captain before I left the earth, "or you'll certainly get guillotined." I craned my neck gingerly round to look behind me. In another little cockpit about 4 feet aft sat the pilot. I could just see his face peering over the edge through a low windshield. Past his head on each side I got a view of the country we were leaving behind. This happened to be a farewell glimpse of Paris. It stretched vaguely away, bathed in the late afternoon sun, and yet shrouded in heavy haze and smoke, a sort of bird's-eye Whistler.

"Below the earth looked like a display of a carpet merchant's dreams. Square carpets, oblong carpets, long strips of carpet, carpets of light green, of dark green, of every intermediate shade of green, carpets of fawn colour and of brown, thin carpets, and carpets of wonderfully thick pile, plain carpets and carpets with symmetrical designs in light brown dots (several thousand feet nearer these dots would have resolved themselves into homely haystacks). Now the carpets stopped as we sailed over a forest of dense dark green with little mirrors stuck in it, which proved through my glasses to be not the tops of greenhouses, as I had imagined, but big lakes.

"And now the wisps of mist became banks of fog as we still climbed upward, and through these white banks the earth could only be seen in isolated dark patches. Higher and higher we climbed, till finally the earth was entirely veiled by the clouds below us. At a height of 3,000 metres, or nearly 10,000 feet, we straightened our angle and on an even keel roared away toward the front. It was a magnificent sight. We were flying along in a clear belt between the lower and the upper clouds. Below us stretched an unbroken white ocean of these lower clouds.

"On and on we flew, until finally I felt, instead of hearing, a violent rapping. Turning my head, I saw the pilot hammering with his right fist on the deck between our cockpits to attract my attention. He grinned amicably and opened his mouth wide. I could see he was shouting at me, but could not hear the faintest sound over the roar of the engines. He pointed to the whiteness below us a little to the right. Then he wrote an imaginary word with his forefinger on the deck between us. I could not read it upside down. I opened my leather coat, and with the cold instantly biting into my chest, hauled out my notebook and pencil and stretched them out to him. He shook his head and indicated that he could not take both hands away from steering, so I buttoned up my coat again in some perplexity.

"Then, without abruptness, with a certain sickening majesty, the aeroplane stood on its head, and shot down on to the surface

of the white sea below us. As it swallowed us we began to spiral rapidly round as though we were tobogganing at top speed down a giant corkscrew.

"As we went on down through this white nothingness, I became very dizzy. The propellers had slowed way down, and I thought the engine had failed, and that we were either falling, falling 10,000 feet, or making a forced descent. But the pilot sat still back above me, so I did likewise. Suddenly we spiralled violently down through the bottom of the cloud into sight of the earth again. Instantaneously the engines broke into their old roar, and the aeroplane stopped pointing straight down, and assumed a steep slant. If anyone ever breathed a sigh of relief I did it then.

"I felt the rapping behind me. Looking round, I saw the pilot pointing down at the earth ahead to our right, and shouting quite silently at me. I shook my head. Then, as we careened downward, he stopped his motors, and in the sudden deafening silence he shouted out, 'The front.'

"Here, if my hopes had materialised, I should be able to give a most striking picture of a battle as seen from an aeroplane. But honesty compels me to say that anyone who wants to get a good clear view of the front had much better go there on the surface of the earth and not through the air. In the first place, it takes quite a little time and trouble to discern the lines of opposing trenches, even when you stand on a quiet observation post, with a general painstakingly pointing and explaining just where they run. Here, though we were now only 1,000 metres up, we were racing along the front at 130 kilometres an hour, and all my friend the pilot could do was to point here and there frantically. So among the maze of white lines I saw running below me through the hazy atmosphere, some which I took for trenches were undoubtedly roads, some which I took for roads were equally undoubtedly trenches, while only a very few could I unhesitatingly guarantee to have been trenches. In the next place the roar of the engine totally drowned out all the reports of the guns and the explosions of the shells which are such a striking feature of the front.

"To make matters still more undramatic, there was no battle going on at the precise moment when we shot downward out of the clouds, but only a rather languid artillery exchange. Even a regulating aeroplane which was sailing round directly below us and about halfway down between us and the earth, was having an exceptionally peaceful time of it. We could plainly look down and see the red, white and blue circles of France painted on the tops of its planes, but there were none of the customary woolly little white clouds of German shrapnel bursting round it.

"Furthermore, the batteries right below it and us, whose fire it was correcting by wireless, were so cleverly concealed that they were quite invisible. The only signs of its being a front at all were the bursting shells from the French batteries. These little puffs of smoke in the hazy distance the pilot spotted unerringly, but he had a discouraging time pointing them out to my unaccustomed eyes as we raced along.

"So this, I fear, is all that anyone visiting the front by aeroplane would have seen this afternoon. Possibly had we hung around longer we might have seen more, but the pilot and I both had important dinner engagements in Paris, and the sun was getting very low. So we reluctantly swept round, and, leaving the silver band of the Aisne behind us, started for home. We kept low now, over 1,000 metres, so that the landscape was very clear and interesting. First we passed over the city of Compiègne, where I had lunched with Dr. Carrel only three days ago, to the accompaniment of an artillery obligato. Then right over the big dark green forest of Compiègne, where I tried, but failed, to locate a chateau I had visited with Mme. Carrel. Then on and on, over a further entrancing exhibit of parti-coloured carpets fitting together at the edges as snugly as any completed picture puzzle.



British Seaplane Sinks Transport.

WRITING from Mytilene under date of August 21st, the *Times* special correspondent said:—

"An exploit comparable in the importance of its results, if not in the daring of its execution, with that of Flight Sub-Lieut. Warneford, V.C., was, I learn, performed on August 12th, by Flight Lieut. Edmonds in the Dardanelles.

"While flying over the straits in a seaplane he sighted a Turkish transport carrying troops. Making straight for his quarry, he descended low enough to be able to drop a heavy bomb full on the deck of the vessel. The resulting explosion split up the transport, which perished, with, it is believed, all the troops on board."

Fined for Not Reporting Hostile Aircraft.

FINES of £5, with two guineas costs, and one guinea, were imposed upon a skipper at Grimsby, who neglected to notify the naval authorities on arriving in port that two days previously he had sighted hostile airships. He explained that as other trawlers which

"Before long we reached Senlis, where I had stopped on my way to Compiègne the other day to take snapshots of the streets of houses gutted by the Germans during their brief occupation before the battle of the Marne. Then on and on without incident till the smoke of Paris came in sight, and on and on again till I looked down through a thousand yards or so of space on the aviation field from which I had started just 1 hour and 25 mins. earlier. Suddenly the motors stopped, the aeroplane heeled over on to the tip of its left wing, and, pivoting round on it, we began one dizzy spiral descent. First on one wing tip and then on the other we corkscrewed dizzily down. First the whole surface of the earth would swiftly fly up, revolving as it came, and slap me on the left side of the face; then a fraction of a second later the same revolving surface would heave swiftly up to slap me on the right side of my face.

"This double spiral descent is certainly by all odds the dizziest proceeding that was ever devised by man. Finally, with a swoop, which I made sure would carry away most of the chimney pots of the suburbs, we made a beautiful glide and alighted as smoothly on the grass of the aviation field as a canoe launched from a beach into a quiet lake.

"There one would think our day had ended, but there was one very vivid thrill left. As the aeroplane came to a stop a mechanic came running up carrying a pneumatic wheel. He spoke a few sharp words to the pilot, and the latter asked me to get out quickly, that he would return and explain some of the details of our flight a little later on. So I scrambled out, the machinist scrambled into my place, carrying the wheel, and with a rattle and a roar the aeroplane rolled across the field and leapt up into the air again.

"I joined some aviation officers, and asked what was the matter. They pointed to a machine a few thousand feet above us, and explained that in leaving the ground that machine had lost one of its wheels. The aviator was ignorant of this, and unless warned in time would, on trying to make his landing, turn turtle and get killed. My pilot had gone up to meet him in the upper air, and by waving the wheel at him indicate his predicament, so that he could land on the left wheel and tail of his machine.

"'Unless he understands before he lands he is a dead man,' said the officer.

"This really was a dramatic spectacle—the one aviator soaring on guard high in the sky in complete unconsciousness of the death that awaited him, the other climbing nearer and nearer, then circling round and round in narrowing circles. Finally the first machine started down.

"'He understands,' said some.

"'No, he doesn't,' said others.

"'Get the ambulance ready,' ordered the aviation captain.

"We all stood perfectly powerless and watched the machine spiral down.

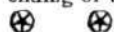
"As he made his glide, men stood in the field waving spare wheels at him to insure his understanding.

"But no. Instead of landing tilted to the left on his sound wheel and tail, he made his landing leaning over a little to the right, where the wheel was missing. As it touched the ground the great machine buried its nose in the ground, its tail rose and rose till it stood perpendicular, and then fell forward in a somersault, so that the plane was lying on its back.

"'He's finished; get the ambulance,' ordered the captain.

"We all started at a run across the field toward the motionless aeroplane, the motor ambulance following close on our heels. As we got to the wreck a figure crawled out and began to swear fluently at not having been warned in a way that a sane man could understand.

"How this aviator escaped will always remain a complete mystery. But his escape made a happy climax to the thrilling ending of an unforgettable afternoon."



were in the vicinity reached Grimsby before his vessel, he thought they would have reported the incident.

Fatal Accident at Southampton.

WHILE a seaplane was being piloted by Flight Sub-Lieut. J. MacLarty on Tuesday in the neighbourhood of Calshot Air Station, Southampton Water, it was noticed to be in difficulties, and fell from a height of 2,000 ft. The pilot was picked up unconscious and taken to Calshot, where he was medically attended, but he died from his injuries later in Haslar Hospital.

The Zeppelin Raider Wrecked at Ostend.

THE *Daily Mail* correspondent at Rotterdam, writing on Sunday, said that the remains of the Zeppelin which, after the raid on England a fortnight ago, was attacked by Allied airmen and towed into Ostend, passed through Bruges on Friday on the way to Germany.

All that was left was chiefly aluminium bars, which were conveyed on four cars.

AIRCRAFT AND THE WAR.

THE *Daily Telegraph's* correspondent in Paris, writing on Sunday week, said:—

"A German aeroplane passing over the French lines dropped an oriflamme, with a paper attached, which ran, 'De Losques and the pilot fought bravely. They are buried at Harbouey, near Blamont.'"

"M. de Losques was one of the young artists who made his name in the *Figaro* by his sketches of new plays. Always after the 'répétition générale' appeared his very personal vision of actors in their rôle. His talent promised great things. His death is felt deeply by his confrères. His name is another to add to the long list of writers and artists who have given their lives for 'La Patrie.'"

In the Austrian communiqué of the 16th there was the following:—

"One of our seaplanes yesterday afternoon bombarded four coast forts at Venice. All the bombs with the exception of one exploded within the fortifications. Of five hostile airmen who ascended to pursue our men two were forced to land by machine gun fire and two abandoned the pursuit after some time, while the fifth airman followed our machine close to the Istrian coast, where he was obliged to turn back without having been successful."

"Our seaplane returned safely, in spite of the heavy fire of hostile war vessels and forts."

In the Berlin wireless of the 16th it was stated:—

"At Bapaume an English aeroplane fell into our hands. The occupants—two officers—were taken prisoners."

According to a Reuter message from Petrograd on the 18th inst.:—

"Taube aeroplanes have been dropping bombs on Vilna."

Telegrams received in Paris from Moscow on the 18th inst. stated that German aviators had dropped proclamations in Riga and have also dropped bombs without claiming any victims.

The *Daily Mail* correspondent at Rotterdam, writing on the 19th, said:—

"Near Brussels the hangars formerly used for Belgian military balloons have been converted into ammunition stores and works. The number of cartridges there is said to be enormous and to be daily increasing."

"A delayed message from Sluis says that on August 12th an Allied aeroplane dropped bombs on Zeebrugge. Fishermen report that two submarines and a mine sweeper were seriously damaged. From another source I learn that one submarine was sunk. The submarines at Zeebrugge are now moored under cover when in harbour. Four waterplanes are also in the harbour."

"From Ostend to the Dutch frontier new heavy guns are concealed in the dunes under platforms covered with sand and moss. Sixteen heavy guns defend Zeebrugge."

The following details of the raid by aeroplanes and a British destroyer a week ago on Sighajik, near Smyrna, was received in Paris from Dedeagatch on the 19th inst.:—

"The bombardment of the place resulted in the destruction of a large part of the barracks and the telegraph installations, and the killing or wounding of more than 300 soldiers. The raid is considered by the Turks as merely a prelude to an attack upon Smyrna itself."

The *Times* correspondent at the British Headquarters in a message dated August 19th said:—

"A German aeroplane was brought down on the evening of the 17th by our guns near Warneton."

Reuter's correspondent at Petrograd on Saturday reported:—

"An airship approaching Vilna has been brought down by Russian fire. It had on board an officer, an engineer, eight soldiers, photographic apparatus, a small machine-gun, and ten explosive and a quantity of incendiary bombs."

"The airship was damaged in four places. The crew were placed under arrest."

According to the Berlin *Lokalanseiger* a message from Czernowitz states that during the birthday of the Austrian Emperor a Russian airman dropped bombs on the town. Two Austrian airmen ascended in pursuit of the Russian,

who escaped. Subsequently several Austrian airmen dropped flowers on Czernowitz as a consolation.

An Exchange message from Copenhagen on the 20th said:—

"Several large German cruisers of the newest type are reported to be steaming north in international waters near Saltholm. They are evidently in wireless communication with a Zeppelin, which was seen early this morning."

According to a *Daily Telegraph* correspondent at Petrograd writing on Monday of the fighting at Kowno:—

"While the attack was in progress thirty aeroplanes and three dirigibles were continually above the town, into which they threw bombs."

Messages from Bukharest received in Paris on Monday stated that the recent fire in Constantinople, which destroyed 1,000 houses, was caused by bombs dropped by Russian aviators. Another Russian aviator the same day bombarded Scutari (Asia Minor), also causing a number of fires.

The *Daily Telegraph* correspondent at Rotterdam, writing on Monday night, said:—

"I have just received information of the new German submarine base having been one of the objects of the successful attacks by the bombarding Fleet. The locality of this base was discovered a very short time ago. It lies in the Zeebrugge-Bruges Canal, at a distance of about one and a half mile from the coast, and was established by the enemy in consequence of the continual attacks of the Allies' aviators having made Zeebrugge Harbour too risky a place for mooring submarines."

"According to a later message from the Zeeland-Flanders frontier, whilst the Zeebrugge batteries were replying to the fire of the Fleet five aeroplanes were engaged in a combat in the air. Three of these were German and two British, the latter acting as fire regulators for the fleet. For a time they were compelled to perform the double task of keeping the fleet informed and at the same time beating off the defending German machines. During the fight one of the aeroplanes is believed to have fallen, but it is not yet known whether it was German or English."

"One German machine flew towards the British ships, but kept at a safe distance. Among the weapons with which the enemy replied to the ships were eight 11 in. guns, mounted around Zeebrugge Harbour. These were placed in position about six weeks ago."

Writing to the *Daily Mail* from Rotterdam on Monday Mr. James Dunn said:—

"A German aeroplane ascended and directed the fire of the enemy's batteries during the bombardment (off Zeebrugge), which lasted three hours."

"Later in the day a German aeroplane flying over Dutch territory near Selzaete was fired on by Dutch guards. The aeroplane was brought down in Belgian territory, but the airman contrived to repair his machine and returned in the direction of Bruges."

Mr. A. Beaumont, writing to the *Daily Telegraph* from Milan on Monday, said:—

"Italian flight squadrons have now twice bombarded the aerodrome of Aisovizza, east of Gorizia, and hardly anything of the Austrian establishment is left. The first time the aviators flew for fully thirty minutes over the aerodrome, dropping bombs, despite a hail of shrapnel sent up from the forts and batteries. The second time a still larger air fleet visited the enemy's camp, and remained longer over the establishment, dropping some sixty shells and causing very material damage."

Messages received in Amsterdam on the 24th from Berlin stated that on the previous evening a hostile aviator dropped bombs on the town of Offenburg, which is outside the zone of operations. The material damage caused was insignificant. Twelve persons were wounded, some of them severely.

A Central News message from Northern France on Tuesday said:—

"Recently the aviators have also been busy, and have blown up a convoy of munitions and destroyed the railway line at an important junction near Ghent."

Models

ALL communications in connection with this section should be addressed to the Model Editor, "FLIGHT," 44, St. Martin's Lane, London, W.C. Correspondents are requested to write on one side of the paper only.

Model Aeronautics in America.

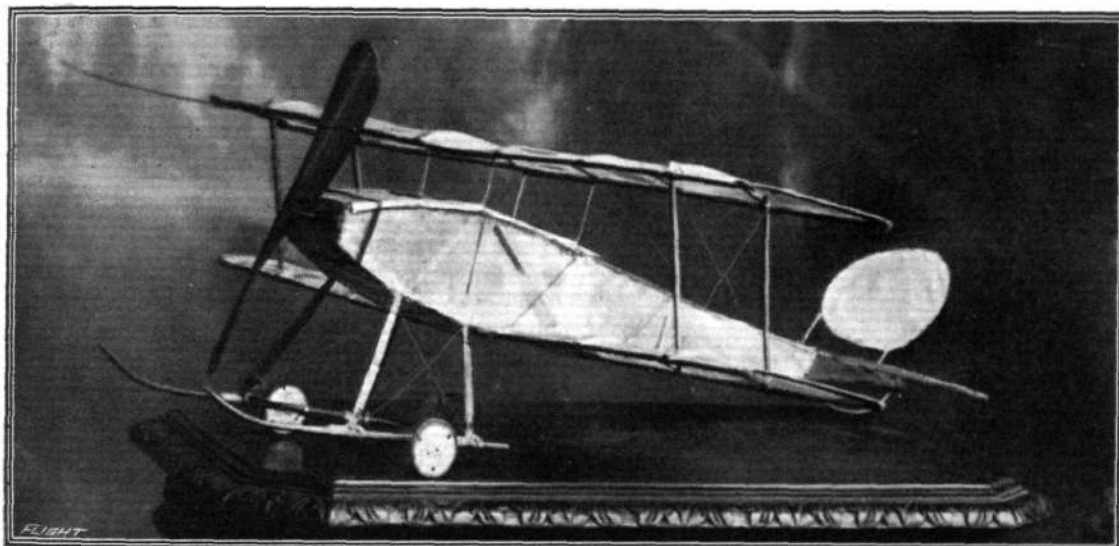
FROM Mr. W. P. Dean, formerly of Manchester, and now at Detroit, Mich., who sent some interesting notes on the above subject, which were given in our issue of November 6th last, we have received the following:—

"Model aeroplaning is now on a revival in the States; five years ago it was only entertained seriously here by boys up to 16 years of age, on an average. Some of these boys, however, around New York in particular, revived the sport when they came of age, and organised the New York Aero Science Club, during which time I

some interest in model flying, and recently organised the Detroit Aero Research and Model Club.

"From my experience I have evolved a type of contest flyer which gives greater possibilities with rubber motors, on the lines suggested by Mr. Alec Fleet, of Oldham and Macclesfield clubs, who flew a 'tail-plane' Fleming-Williams type with very small elevator."

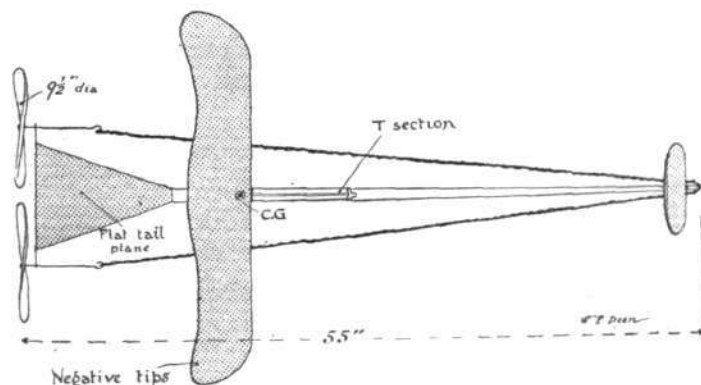
The sketch will give an idea of the general arrangement of the model, which has very good longitudinal stability. Note should be made of the short span of the main plane.



An r.o.g. model,
on full scale lines,
built by Mr. G.
G. Cranston, of
Newcastle-on-Tyne.

made their acquaintance, chiefly through correspondence with their genial and clever secretary, Mr. Harry Schultz.

"Several new model aero clubs have been organised in different parts of the States during the year, but up to the present we can only boast of thirteen clubs who have announced themselves and are entered for the national model aeroplane contest organised by the Aero Club of America, and of which you gave details in your issue of July 30th last. Each club has to hold an elimination contest to decide upon the best competitors to represent each club. In addition to prizes of \$50, \$25 and \$10—nothing but cash prizes will



draw out here—a large silver cup known as the Villard Trophy, donated by Mr. Henry S. Villard, is to be awarded to the club whose members collectively make the largest score (computed by the point system) during the three months. A club becomes the owner of the trophy when it has been won for three consecutive years by its members. The rules governing the winning of the trophy will be progressive in accordance with the progress made in model flying.

"Since coming to Detroit a year ago, I have gradually aroused

An R.O.G. Model on Full Scale Lines.

Writing from Newcastle-on-Tyne, Mr. George G. Cranston says:—

"I am sending a photograph of a model aeroplane which I have recently completed. During its first trial it rose off the ground in about a distance equal to five times its own length. The initial stages of the ascent were very steep, but the flight finished with the tail sliding. The second attempt proved more successful than the first, after a slight adjustment had been made to the tail. The total distance flown was about 125 yards, and the landing after having flown the distance was most effective.

"The main dimensions of the model are as follows: Span of wings, 2 ft. 6 ins.; chord, 5 ins.; dia. of propeller, 12 ins.; dia. of wheels, 2 ins.

Paper Models.

With reference to the notes on the making of paper models which appeared in our last issue, it is of course quite possible to go on from the simple types described to build exact scale models of full size machines. With a little patience and practice it is by no means difficult to build them entirely out of stiff paper and strips of wood so that they are not only good gliders but capable of being propelled by elastic motors. The only materials required are cartridge paper for the wings and body, thin cane and wood for the struts and chassis, umbrella rings for the tyres of wheels and cork for the wheels and other details. It will be found that the little thin canes of which Japanese screens are made are simply splendid for struts, &c. These models, if carefully made, are immensely strong and light; the wings can be made cambered and double surfaced, and do not require any spars or ribs, being made entirely of paper. We propose to give some further details of this class of model work shortly.

For Leeds Aeromodellists.

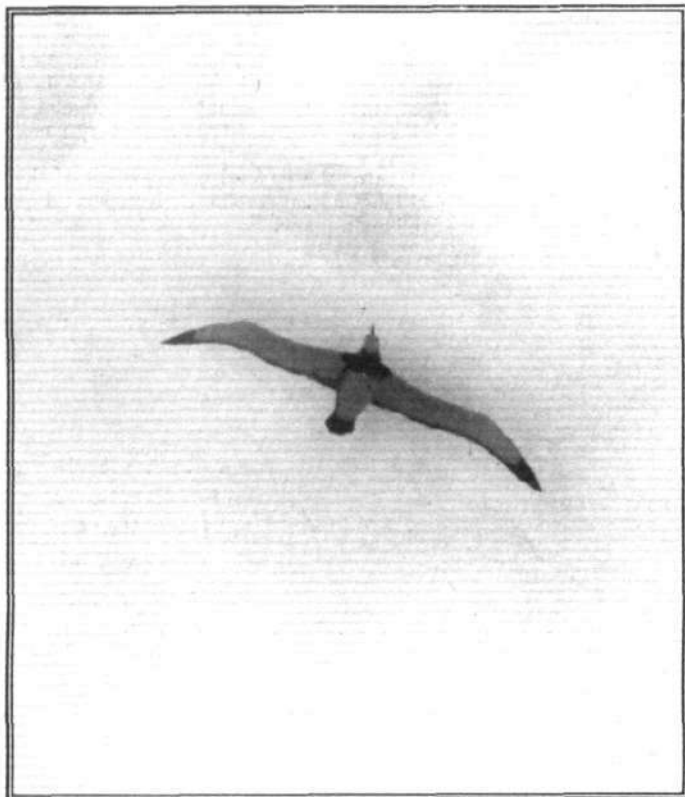
A meeting of the Leeds Branch of the International Correspondence Club of Aeronautics will be held on Adel moors on August 29th at 2 p.m. prompt, and members are asked to attend with models. Those who want further particulars can obtain them from the Hon. Sec., Mr. F. J. Mabb, 4 Bk. Greenmount Terrace, Beeston Hill, Leeds.

CORRESPONDENCE.

The Albatross.

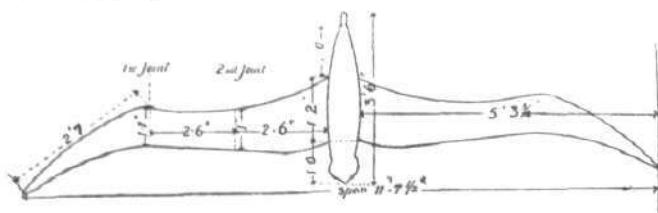
[1908] I am sending you a photograph of an albatross in full flight taken from below, which I thought might be of interest to readers of "FLIGHT."

This bird, which I caught, about five minutes after the photo. was taken, off Cape Horn in latitude 61° South, was, I think, the largest



The Albatross, as seen from below.

I have seen; I believe they occasionally reach 12 ft. span. The photo. is an enlargement, the original is only $\frac{1}{2}$ in. long. A short description of the method of flight may be of interest to readers who have never had the pleasure of watching one of these fine birds gliding about, thousands of miles from land in the southern seas in all weathers, sometimes 7 or 8 together, presenting a fine example of turns and vertical banks and saves from sideslips, which is apparently done by sticking both legs out at right-angles to the body. When flying against the wind they hardly ever move the whole wing, just a slight movement from the first joint. When flying down the wind a slight flapping or up and down movement seems to act as a kind of brake, which checks them and also steadies them; this "flapping" is a very slow, short stroke, it can hardly be called a flap.



The following are the full dimensions of this bird, larger or smaller birds vary accordingly:—

Span	...	...	11 ft. 7 $\frac{1}{2}$ ins.
Tip of beak to tail	...	...	3 " 6 "
Beak to leading edge	...	...	1 " 0 "
Tail to trailing edge	...	...	1 " 0 "
Chord of wing at body	...	...	2 " 2 "
" second joint	...	...	1 " 0 "
" first joint	...	...	1 " 1 "
Tip of wing to first joint	...	...	2 " 7 "
First joint to second joint	...	...	2 " 6 "
Second joint to body	...	...	2 " 6 "
Span of each wing	...	...	5 " 3 $\frac{3}{4}$ "

The feathers on the trailing edge are very soft near the body, getting stiffer towards the tips of the wings (see the black edge in the photo.).

Woolhampton Rectory.

E. ALLEYNE FREEMAN.



German Aircraft and Wrecked British Submarine.

A TELEGRAM published in the *Berlingske Tidende* states that a German waterplane was seen to drop bombs upon the E 13 while she was aground near Copenhagen, damaging the submarine. Two hours later two German destroyers, who had evidently been told by wireless from the waterplane of the submarine's difficulty, arrived and began firing at her.

According to other reports, a German Zeppelin on Saturday morning reconnoitred over the waters south-east of Copenhagen and photographed the wrecked submarine. After remaining for an hour the airship disappeared southward.

German Seaplane Stranded in Denmark.

INFORMATION received from Copenhagen states that a German seaplane, according to some accounts No. 293, a monoplane of the latest type, was stranded on the Island of Manoe on August 22nd. As the aviators were unable to effect repairs within 24 hours, they were interned and the machine, which the pilots partially succeeded in destroying by fire, was seized by the Danish authorities.

Germany's Aerial Losses.

THE latest Prussian casualty lists, No. 284 to 307, contain the names of 39 German aviators killed, 25 wounded, 19 missing, and 9 prisoners in the hands of the Allies.

New German Airships.

Het Volk learns that a Dutch trawler coming into Ymuiden reports having seen over the North Sea a German dirigible painted yellow, of the Zeppelin type, but much smaller, which was accompanied by a Zeppelin of the usual size.

New German Anti-Aircraft Gun.

THE *Morning Post* correspondent at Berne, writing on August 22nd, said that it was reported from the German-Swiss frontier that the Germans have lately used a new gun specially designed for use against airmen. The gun fires four shots simultaneously towards four points corresponding as it were to the four corners of a quadrilateral.

The Escape of Gilbert.

ACCORDING to reports from Paris, Gilbert managed to effect his escape from Hospenthal, the Swiss mountain village where he has been interned since June 27th, through the help of a friend who was able to provide him with a touring suit and false beard and moustache. In this disguise, after two hours' walking he reached Goesehaven, took the train to Lucerne, then motored to Geneva and crossed the lake to French soil. In an interview he has stated that the story of a previous attempt to escape, disguised as an old woman, was a German invention, with the object of inducing the Swiss authorities to keep a closer guard over him.



Aeronautical Patents Published.

Applied for in 1914.

Published August 26th, 1915.

- 13,520. SIGNAL GES. Radiating system for signalling by electric waves from aeroplanes.
- 13,944. SIEMENS-SCHUCKERTWERKE. Rigid airships with separate cells or compartments for the gas.
- 18,046. R. L. G. MARIX. Safety belt for aviators.

FLIGHT.

44, ST. MARTIN'S LANE, LONDON, W.C.
Telegraphic address: Truditur, London. Telephone: 1828 Gerrard.

SUBSCRIPTION RATES.

FLIGHT will be forwarded, post free, at the following rates:—
UNITED KINGDOM. ABROAD.

	s.	d.		s.	d.
3 Months, Post Free...	3	9	3 Months, Post Free...	5	0
6 " " " " " "	7	6	6 " " " " " "	10	0
12 " " " " " "	15	0	12 " " " " " "	20	0

Cheques and Post Office Orders should be made payable to the Proprietors of "FLIGHT," 44, St. Martin's Lane, W.C., and cross the London County and Westminster Bank, otherwise no responsibility will be accepted.

Should any difficulty be experienced in procuring "FLIGHT" from local newsvendors, intending readers can obtain each issue direct from the Publishing Office, by forwarding remittance as above.